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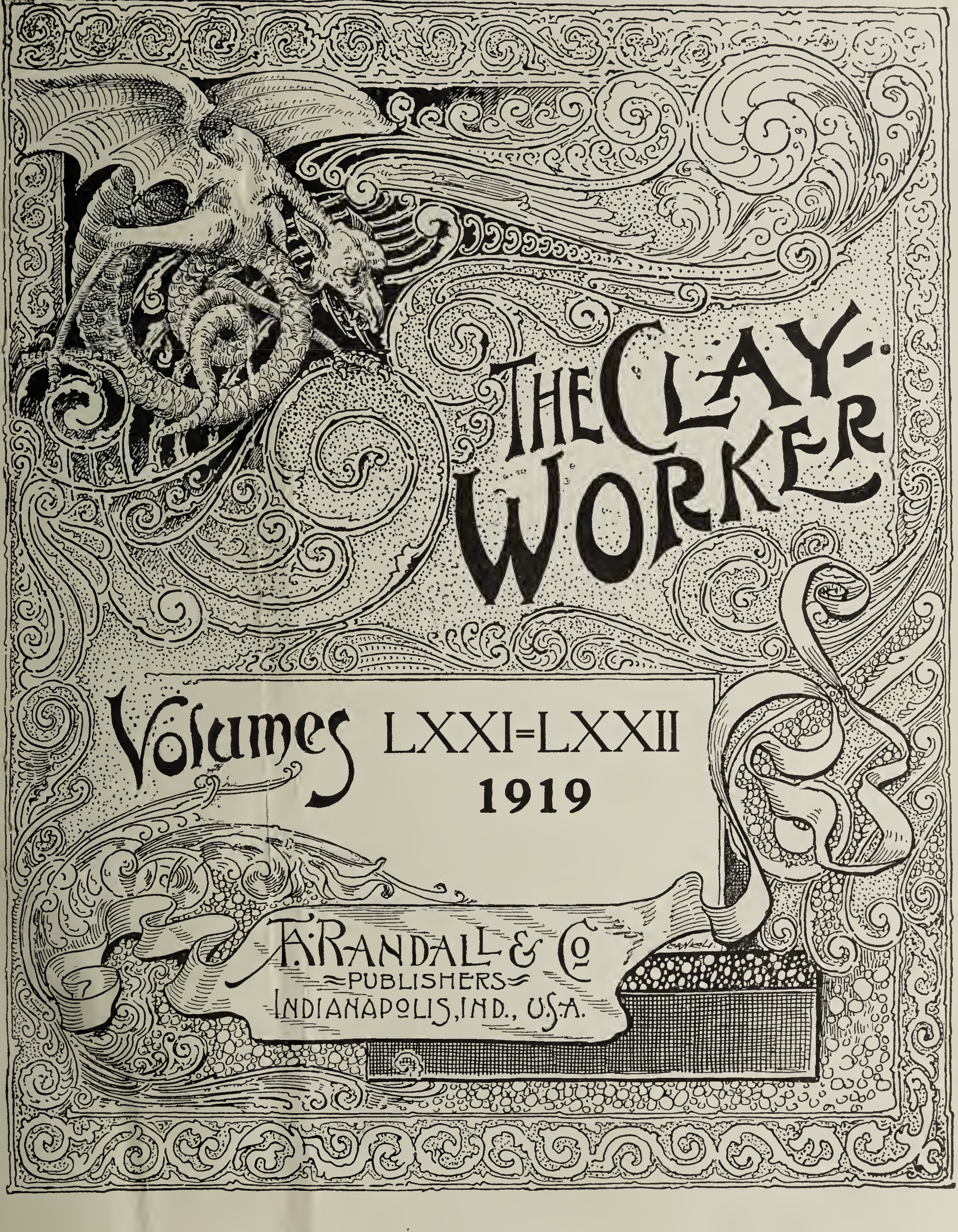

THE CLAY-WORKER

Volumes LXXI-LXXII

1919

T. A. RANDALL & Co
PUBLISHERS
INDIANAPOLIS, IND., U.S.A.

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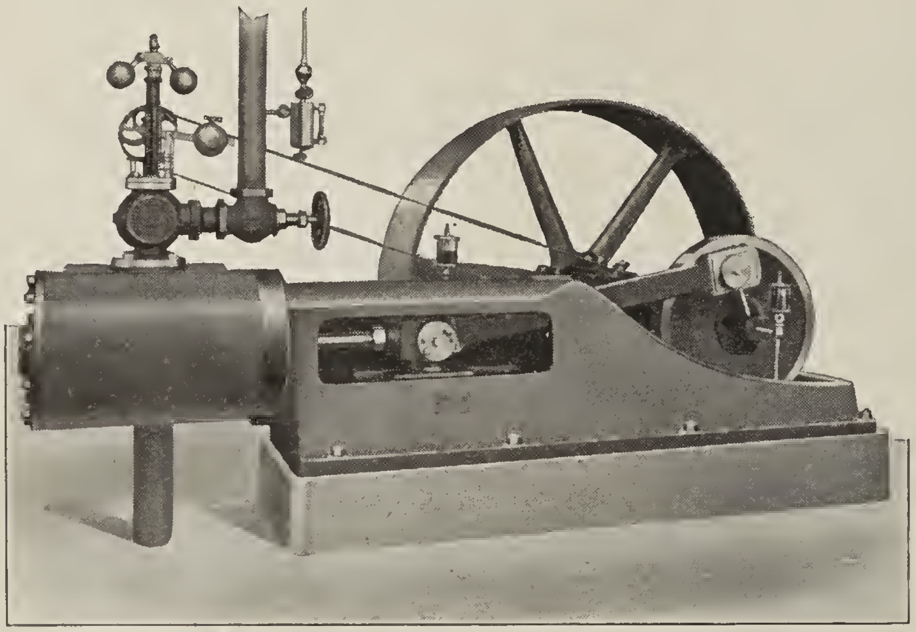
THE KIND OF AN ENGINE *YOU* NEED FOR *YOUR* POWER.



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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, IND., JANUARY, 1919. No. 1.

THE 1919 N. B. M. A. CONVENTION CITY

A GREAT CLAY CENTER Where Every Branch of the Third Most Important Industry in the Nation is Well Represented. Plants and Products May be Inspected by Those Who Attend the Thirty-third Annual Convention February 3rd to 8th.

PITTSBURGH'S INDUSTRIAL PRE-EMINENCE has been established for more than a century. As the seat of the greatest munition plants in the world since 1914 it has been known as the Arsenal of the Allies. Here, within a radius of about ten miles were manufactured war materials of every character, and in this district was produced much of the amunition that won the war for liberty and civilization. Pittsburgh, under its new title has entered upon a career of peace. Industrial readjustment is coming rapidly, and within a few months the mills and workshops of Pittsburgh, after four busy years of work in arming the nations for war against the Hun will resume a career of activity hitherto unknown in the commercial history of this country.

The Union Arcade, Pittsburgh's Most Beautiful Office Building, Across the Street from the William Penn Hotel Which is Seen in the Background.

One billion dollars scarcely represents in round numbers the value of the annual product of Pittsburgh mills during the present year. This figure represents an increase of about 25 per cent. over the production in normal times, but it is believed that the stimulus given during the past few years and the urgent requirements for the material manufactured in Pittsburgh will result in the normal output reaching a value represented by seven places in figures.

It is to this wonderful community that the delegates of the National Brick Manufacturers' Association are directing their way for their annual convention during the week of February 3rd.

Pittsburgh's supreme position as an industrial center is due to the bounty of nature. The finest bituminous coal in America, the highest grade of oil and an almost inexhaustible supply of natural gas surround the city.

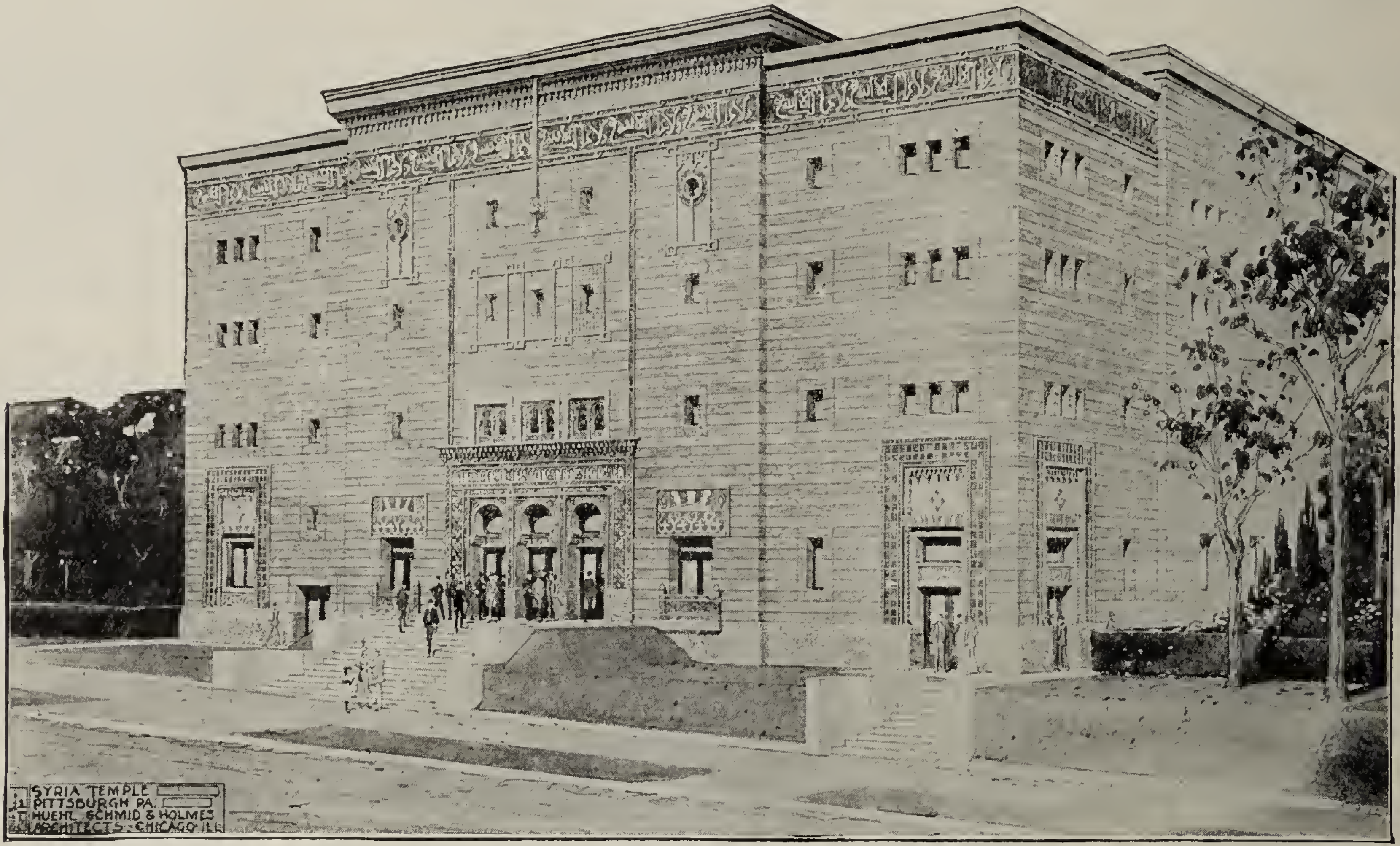
Supplementing these natural resources, and of almost equal import, is the geographical and topographical location of the city between the Monongahela and Allegheny rivers and at the point of formation of the Ohio river and so hemmed in by hills and mountains as to form the natural "Gateway to the West." Thus, with a basic supply of raw materials and exceptional distributing facilities, Pittsburgh industries have attained gigantic proportions.

As early as 1760 the garrison at Fort Pitt and early settlers dug bituminous coal in what is now the business section of Pittsburgh. Pittsburgh coal is pronounced by the United States Geological Survey to be the highest in heat units in the entire country, and in 1912 the Pittsburgh district produced double the output of the states of Ohio and Indiana combined, and 9 per cent. of the world's output of all species of coal.

In 1841 the coke industry was established in the Pittsburgh district, and today this district produces within a small fraction of one-half of the entire production in the United States and more than the entire production of Great Britain.

In 1868 the properties of natural gas in the Pittsburgh district as a fuel for manufacturing purposes were discovered. Not until 1883 was production on a large scale begun. Natural gas in this district contains about 88 per cent. methane and 12 per cent. ethane, and has a heating value of 1100 B. T. U. per cubic foot. About 40 per cent. of the natural gas developed in the United States is produced in the Pittsburgh district and territory immediately adjacent. The natural gas produced in this district in 1912 was valued at $51,888,693. About one-third of this district production is piped directly into Pittsburgh and sold for industrial consumption at a price averaging 14.5 cents per 1,000 cu. ft.

In 1859 crude oil, or petroleum, was first produced commercially in the Pittsburgh district. Pennsylvania petroleum is the highest grade in the United States, and this year sold for $4.00 per barrel, the state production approximating 10,000,000 barrels annually.


SYRIA TEMPLE
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Syria Temple or Mosque—A Massive Brick Structure with Unusual Decorative Features in Terra Cotta.

With these fuel basics centered at a point of easy and economical distribution, and the prolific iron ore deposits of Lake Superior of easy access, the iron and steel industry of America naturally centered in Pittsburgh.

In 1790 the first iron furnace was built in Pittsburgh. In 1912 the Pittsburgh district produced 10,001,099 tons of pig iron—a total that exceeds that of any entire nation in the world, save Germany and the United States—and represented 66 per cent. of the total German production.

The total steel production of the Pittsburgh district (40 mile radius) for 1912 was 11,199,430 tons, a trifle more than double that of Great Britain. The total steel production of the city of Pittsburgh (10 mile radius) was 13,801,560 tons, as against 12,233,060 tons for all of Great Britain. These totals include both ingot and finished steel in each case. Separately the same proportions hold.

In the manufacture of brick and clay products, Pittsburgh occupies the center of a district which leads the country in the production of these materials. Rich veins of clay surround Pittsburgh and these are worked to the greatest advantage. Along the Ohio river the manufacture of brick and terra cotta goods is supplemented by potteries which are among the best known in the world. Ptttsburgh's advantage in the production of clay products results from the proximity of the raw materials and superior facilities for the distribution of the finished products. In consequence of the Pittsburgh district's lead in brick, terra cotta and other goods of this nature, this city is looked upon as the logical center for the Annual Meeting of the National Brick Manufacturers Association.

Structures of Interest to Visitors.

Many of the members of the N. B. M. A. are Shriners, and naturally they would be interested in the Shrine Temple, and also the Scottish Rite Temple, which stand on opposite sides of one of the main thoroughfares of the famous Schenley Park district, noted for its many beautiful edifices. The Syria Mosque is one of the finest temples in the land and is quite unique in its architectural decoration, the chief feature of which is the cornice frieze or belt course executed in white terra cotta, on which appears in Egyptian hieroglyphics the inscription, "There is no conqueror but God." The Mosque boasts of one of the largest and finest auditoriums in America, and it is frequently the scene of elaborate entertainments, both public and fraternal. N. B. M. A. visitors bent on sightseeing should visit Schenley Park. Next door to the Mosque is the Pittsburgh Athletic Club, which is unsurpassed by any similar institution in the land. The local committee will be glad to supply visitors with the necessary cards of admission to these and similar institutions.

The Pittsburgh Chamber of Commerce, a live-wire organization of nearly 5,000 members, comprising the captains of industry and finance of the city, is one of the conspicuous buildings in the business district and is located three blocks from the William Penn Hotel. Its publicity department, in charge of John P. Cowan, was instrumental in the selection of Pittsburgh for the 1919 N. B. M. A. convention. The Chamber is a combination of club house and commercial office building. The members gather there each noon for luncheon, and there is always something doing. A cozy auditorium on the second floor is the scene of many interesting lectures and picture shows. Usually there is an entertainment, mostly of an educational character, given in the auditorium following luncheon. The Chamber supplies gratis to its members and invited guests a lantern and an operator for amusement and educational purposes. It is in fact a liberty hall, in which the problems of the day are discussed without bias, the only restriction being that partisanism be avoided. Naturally, advertising of a personal sort is tabooed, but all questions of general interest are proper subjects for consideration and discussion. The luncheons are always on the "Dutch treat" order. Those attending the National convention will be welcome guests. Visitors' cards will be supplied those desiring them, but the badge of membership alone will be sufficient for admission convention week. Luncheon is served during the noon hour week days, and, as stated, there is always something doing of general interest.

The Chamber of Commerce, Where N. B. M. A. Delegates Will Find a Warm Welcome Convention Week.

THE LABOR QUESTION.

The labor question is before us today in somewhat unusual form. Every man with work to do is being called upon to help see that labor is confronted with a claim for higher wages than were ever known before. And back of this is a somewhat militant order of labor leaders clamoring for the retention of these high wages. In brickmaking the two important items of cost are labor and fuel, both of which are now in high gear. So many a brick man is wondering what he can do about it, how he can meet these demands and at the same time produce brick at a price which will sell them in large quantities. In the settling of this question it is readily evident that the extremists, the junkers and the near I. W. W.'s will have to be shelved that reason and right all around may prevail.

PURPOSES AND BENEFITS OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION.

By W. E. Dunwody, President of The Georgia Brick Manufacturers' Ass'n., Macon, Ga.

THE NATIONAL BRICK Manufacturers' Association was organized at Cincinnati in 1886, and though it is said that those who met there at that time were very earnest and enthusiastic, they probably did not realize the full measure of the importance of their action upon the future development of the brickmaking and other clayworking industries of the country, for that gathering marked an epoch in the history of brickmaking in America. It marked the turning point from crude handcraft to scientific research and mechanical development. Brickmaking has progressed more during the past thirty-three years than during the thirty-three hundred years preceding that time, and the National Brick Manufacturers' Association has been the original band wagon of American progress; the parent organization out of which many others have sprung; the home center to which all the big problems of the industry have been brought for solution and discussion; the meeting place where the members of the trade have come to know each other better, as well as to understand more clearly the many problems of the manufacturing end of the business.

Organizations and Their Objects.

The N. B. M. A. was something of a pioneer among the business and commercial organizations of the day. At the time it was organized, there were but few such industrial organizations, while today every line of industry and business activity has its general, local and special organizations, and the organization habit has spread to the point where it is confusing, and in some instances is plainly overdone. Every organization has for its foundation a purpose or object. Sometimes the object is local as to territory, while at other times it is local or limited as to character. Some organizations have for their object the maintenance of prices, some the pushing of sales, promotion bureaus, advertising campaigns, etc. Some are for the control of channels of trade; some are for the maintenance of mutual insurance; some center around traffic matters, and so on to many and varied specific purposes; and among all of them there enters to some extent the educational and the social.

Competitors and those engaged in the same line of work get to know each other better, and they learn things about the business which they would not likely learn otherwise, even though this is not made a prime object.

With the N. B. M. A., the prime object has always been educational, correlated with the attending social side. The purpose of the first gathering was to make inquiry into and exchange opinions about new and improved methods of brickmaking, and it is this as a purpose or object upon which the organization has centered its energies for thirty-three years. Let us consider this question and take some stock of the benefits that have been derived from the course followed.

As set forth in the little folder Secretary Randall sends out to his correspondents, the N. B. M. A. is purely an educational organization, and this has been its chief function since its inception in 1886. Although this fact has often been repeated, it is still ignored by a few inside, and more outside of the organization, whose interests center chiefly in publicity and sales promotion, and who criticise the Association for its lack of commercialism. Now, while the Association recognizes the importance of promoting a more extended use of clay products, as the most artistic and most durable building material, yet it maintains that the greatest good to the brick industry can be accomplished, and has been accomplished, by study and investigation of improved methods of manufacture and the dissemination of information gained by the researches and experience of its members. It keeps ever in mind that the surest and most logical way to extend the use of brick is to improve the quality and decrease the cost of production.

The chief purpose in all of our activities is educational. Our Association is a school for instruction in all matters pertaining to the art of brickmaking, and we disseminate information not only to our members, but freely to all who read our trade journals. It should be said in this connection that we believe in local organization of brick manufacturers, and offer our advice and assistance in the establishment of such organizations. Indeed, nearly all allied organizations, local and otherwise, have been assisted by and are indebted to the National Brick Manufacturers' Association.

Thus it will be seen we are broad and liberal in our educational efforts.

To many of you, the word education brings a mental picture of the school house, books and tiresome lessons, a period in life that we are happy to get through with and turn to what we consider the bigger things—and the real work of life.

But there is another view which we find expressed in the chronicles of the Good Book. We consider the choice of Solomon for in its broad sense education is nothing more nor less than the acquiring of knowledge and wisdom. Solomon, the great king of biblical history, chose as the gift he desired of God, nor riches, nor honor, nor wealth, nor the life of his enemies; but what he asked for was knowledge and wisdom. And this proved to be not only the greatest of all gifts, but in the final analysis it included most all the others. Often, too, we may find it so today, that in acquiring knowledge we gain most all the things that are worth while.

One of the things that has been freely done in the brickmaking industry which furnishes a contrast to some other industries, is the practice of exchanging information, and the spirit of fellowship generated. The cement industry has learned this and profited from it of late years. In the earlier days of development in that industry, I am told, plants were closed to visitors and a general air of secrecy prevailed. Indeed, this practice of secrecy was common in many industries up till a few years ago, and in nearly every case the industries suffered from it—had sharper competition and made less progress.

Contrast with this the practices and the spirit that has prevailed in the brickmaking industry from the very early time at which machinery, modern methods and research work were taken up by association, and we have an example of benefits that is truly inspiring, and a spirit of co-operation that has been a sort of beacon light to many in other lines of industry.

The Interdependence of Mankind.

Through the free exchange of information about manufacturing, drying and burning methods we have not only learned that knowledge is one thing we can give the other fellow and still have, and have added to it other knowledge given in exchange, but it brings a realization of the interdependence of mankind, of how we are one and all in a way dependent upon each other, and must consider each other if we would progress rapidly and make that progress substantial.

We have had an impressive example of this fact in a broad sense in our international affairs. Not only our country, the cradle of personal liberty and independence, but all the world, has come to realize that even nations are interdependent upon each other for their welfare. Nor is this all incompatible with independence and liberty, but rather is it complimentary to it. Liberty to choose and act, combined with friendship and teamwork with the other fellow, and a consideration of the general welfare as well as a following of personal ambitions, is the dominant idea today. As President Wilson said in his speech responding to the address of welcome to England by King George, "The hearts of men have never beaten so singularly in unison before. Men have never before been so conscious of their brotherhood."

The N. B. M. A. has shown that brick manufacturers are in an important sense dependent upon each other; that the progress and prosperity of the industry come only from a general recognition of this fact, and the consequent association for mutual help, for co-operation on technical problems of manufacture, business ethics and the benefits of social intercourse.

An Authoritative Summary.

At the meeting in Chicago in 1913 Professor Orton presented a splendid review of the field of usefulness of the N. B. M. A., in which he told of the early work of standardization of clay products and of the idea of technical training, which grew and resulted in the establishing of the American Ceramic Society, and of the aid that has been given to it and to schooling by the N. B. M. A. Also, he told in a manner that cannot be improved upon, and hardly needs repetition here, because most of you are familiar with the facts, of the various offshoots of the parent organization in the clayworking industry and allied lines. He told, too, of the good work of the pioneers in research lines, and pointed out that almost every one of the actual leaders of research in clayworking fields in America today got their personal training in this very work of the National Brick Manufacturers' Association. Here is a paragraph from his review on the question, "Would the things that a publicity bureau would do properly take the place of what we have done?" which is worth repeating:

"The publicity work needs doing, but, after all, it is only a small factor of our work. I believe in it, and have done my share to help it along, but those who would convert an organization which has to its credit the list of achievements herein set forth into a publicity organ, surely needs mental perspective, for they fail utterly to distinguish the really big things of life from the little and incidental."

Deeds of Accomplishment.

That we may fully appreciate the educational element and what it has led to in the way of big and broad accomplishments in this great country of ours, we have but to look around us and make some comparisons between the old world and the new, and between other parts of the world and the United States, where education has led to the acquirement of knowledge, or initiative, invention and ambition to enlarge upon the usefulness and capacity of man through the application of science and through the invention of labor-saving devices.

We all have fresh and vividly in mind the thrilling deeds of our soldier boys on the battle fields of France, and the wonderful things done by that great army of workers at home, who have backed them up and made the victory for liberty and right more quickly possible. And while we thrill at every recounting and reminder of it, we are beginning to realize underneath the thrill, as we never have before, something of the bigness and greatness of our country and our people. We have demonstrated to ourselves as well as to the world at large factors of greatness in accomplishment clear beyond anything dreamed of in the past.

What is the answer? What the reason? The underlying fundamental that makes all this stand out so conspicuously in the history of the world as to mark what may well be termed a new era in both material accomplishment and human ideals? The answer is to be found in the common school education of the masses; the technical training of high schools, and the broad, liberal education of our democratic institutions, all contributing that knowledge and wisdom and power that leads to right thinking, intelligent action and increased capacity. Mechanical development is the one outstanding characteristic of American industry which sets it apart from and puts it ahead of all the rest of the world.

Mechanical Development.

Most of us are tolerably familiar with mechanical development in the clayworking industry, and can perhaps readily appreciate the wonderful extension in the use of labor-saving devices since the day of that first meeting of the N. B. M. A. We can look around us at the gatherings of today and see in the showing of the machinery contingent an impressive demonstration of the work of inventive genius and the growth of labor-saving devices as a marked characteristic, in bold contrast to the primitive means of the earlier days.

But there is another consideration—two of them, in fact—that we need to get more deeply impressed upon our minds in this connection. One is the part which the organization and the getting together at the meetings has played in keeping alive and at work the spirit and inventive genius which has brought about this great change and improvement. It is a thing that cannot well be measured by dollars and cents and entered into the record to the credit of the N. B. M. A., but, like good will, friendship, knowledge and ambition, it is easily recognizable as being an accomplishment of great value.

We should also have impressed upon our minds an understanding of what it means to increase the producing capacity of man through scientific study and the use of labor-saving devices, for it is this which has played the major part in making the people of the United States the most powerful nation in the world.

Democracy's Greatest Accomplishment.

It is now being realized that the greatest accomplishment of that democracy which has begotten enlightenment and personal initiative along with personal liberty is in the wonderful productive capacity it has given to man through the invention and development of mechanical power and labor-saving devices. Progress along this line, as has been stated above, is the great outstanding characteristic of the country. Perhaps some idea of what our country has done as compared to others can be had from the record of patents taken out, though many good ideas and improvements are not patented.

One authority has recently stated that there have been three billion patents taken out in the whole world since we have had patent laws and kept a record of such things. Of this total, a billion, or one-third, are accredited to the United States, half a billion each to France and Great Britain, 300,000 to Germany, and 277,000 to Belgium. Of a list of about fifty of what are termed epoch-making inventions, like the telegraph, electric light, etc., thirty-eight are accredited to the United States, or three times the total of all the rest of the world combined.

Perhaps coal consumption is the best gage for measurement and comparison in the use of mechanical power and labor-saving machinery. Here again the United States stands out conspicuously ahead; the total consumption in the United States is, in round figures, 500,000,000 tons. Roughly speaking, the coal production and consumption in the United States practically equals that of Great Britain and Germany combined, and is greater than that of any ten countries outside of these.

Resultant Blessings.

Along with the increased producing capacity of man comes an increase of consuming capacity. That is one of our many blessings. That is why our workmen get the highest wages in the world. That is why we have more of the best homes, use more automobiles and enjoy more of the comforts and luxuries of life than the people of any other nation. Also, it is why we have the biggest field of prospects ahead for brick and other clay products to be used in building operations, street paving and road making. In short, in the enlargement of the capacity of man we have democracy's greatest material accomplishment. When other nations understand this fully, and begin to profit from it, they will find therein the main solution of what is termed war of trades. More producing capacity, therefore less call to look abroad for marketing the output of manufacturing industries, for the market will be enlarged at home.

That Fixed Purpose.

Maybe all this sounds like wandering far afield and away from the subject of the purposes and benefits of the N. B. M. A., but it is a part of the subject and fits in with it, both directly and indirectly. When the purpose, as has been plainly and persistently set forth, is educational, the following of it leads directly to the gaining of knowledge and wisdom, and this, in turn, leads to better methods, greater accomplishment and more of the really worth-while things of life. Just as it has paved the way of the country as a whole to do more building than any other country in the world, it has also paved the way to the making of more brick and better brick with less expenditure of human energy, less certainty as to outcome, and a bigger place in the sun for the industry as a whole.

Plainly, just as our forefathers builded better even than they dreamed in establishing the Republic of the United States, so also did those pioneers who organized the National Brick Manufacturers' Association build better than they knew when they affixed firmly to it the purpose of education, enlightenment, the gaining and spreading of knowledge of all phases of the work of manufacturing brick and other clay products.

STANDARDIZING ARCHITECTURE.

While it is practical and proper to standardize many of the elements or items which go into architecture, and while it is right and proper to use the same house plan outlines for many different homes in various parts of the county, we should guard against the following of this idea to the point of standardizing architectural designs and thus losing the beauty of diversity.

Several incidents of the day serve as reminders that we may be running too much to the standardization idea in architecture. Our government got the idea in connection with industrial housing, and when the government agencies get an idea of this kind they, too, often run to extremes with it. If the war had continued the urgent needs of the day would have justified extensive standardization in housing to get action, but that urgent need has passed and now we should give a little thought to the element of beauty in the upbuilding of industrial centers as well as economy and sanitation.

Even over in France they have caught from our folks some of the fever of this standardization idea, and it is the telling of this, of the plans for standardization in the reconstruction of France, that makes one feel like a word of caution is in order. What a calamity it would be to make the reconstructed farm villages of France look like some of our mill, factory and mine towns with the tiresome monotony of standard design! So long as the work of standardization is confined to door and window sizes and items of that kind there is more justification than room for complaint, but when it reaches into the architectural design it is time to call a halt in the name of beauty.

Everybody admits that brick boosting is a good game to play at, but too many want to let the other fellow do the playing—and the paying of the fiddler.

Logically some of the froth must be taken off the high values, but let us not do too much waiting for lower prices all around, for that way lies stagnation, one of the things we must guard against if we would have prosperity.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XXXIII.

Banding Round Kilns.

WE have differences of opinion in regard to the proper banding of a round kiln, varying from a single band at the crown skew level to a complete steel casing including the furnaces. Regarding the advantages of the latter, Prof. Harrop in "Kiln Expansion and Bracing," says, in substance:

(1) The kiln walls are kept plumb.
(2) There is no leakage.
(3) The walls are protected from the elements.
(4) Steel radiates 12 percent less heat than fire bricks.

No one, we think, will question the advantage of a steel casing and only the cost of installation prevents its universal adoption.

The usual thought in relation to kiln bands is, that the chief purpose is to hold the walls in place and prevent the collapse of the crown, and for this we do not need steel casing. Harrop figures that a band 1/8 inch by 6 inches is strong enough to withstand the thrust of a 30 foot kiln crown, but unless the kiln walls are properly laid to take care of the wall expansion, the strain on the band may be greater than that due to the crown thrust. We have had 5-16 inch by 6 inch, and 1/4 inch by 10 inch bands burst on smaller kilns than 30 feet diameter.

We found it necessary, where the banding consisted of several narrow bands, to adjust the tension during the first heating up of the kiln. At intervals of about 30 minutes each band was loosened to a normal tension and thus we provided for the wall expansion. After the kiln cooled, we found all the bands loose, showing that the kiln wall practically carried the crown thrust.

A very extensive practice is to use a single band 24 inches to 36 inches wide as the height of the wall above the kiln door will permit, sometimes cutting out the lower side of the band to conform to the door arch. Such a band is put in place when the wall has reached the proper height, fully riveted thus eliminating bolts and lugs, and the wall is carried up to the final height inside the band. Such a band is amply strong for both crown thrust and wall expansion.

It is questionable however, whether such a band is the best practice. It is good in that it gives a wide margin of safety, and in so far as it approximates a steel casing, but unless it is supplemented by lower bands the walls will bulge and crack, thus opening passage ways for cold air in the lower part of the kiln where the inward leakage is greatest and where (in down-draft kilns) we have the greatest difficulty in attaining the desired temperature.

It would be better practice to case the lower part of the kiln wall with a wide band and support the crown with a narrow band, but since the ash pit, fire doors, and wicket opening complicate the use of a wide band around the bottom, it is more practical to use a number of narrow bands which can be placed to miss the openings. One band can be placed with its top edge flush with the kiln floor or ash pit floors. A second band can be placed at the grate bar level. A third band at the top of the fire mouth, and above this other bands can be spaced at close intervals up to and including the crown skew level. The bands below the wicket arches can be carried across the wicket opening by long bolts, or better a steel frame can be placed at the wicket jambs, and the bands within the wicket height attached to this frame. Such a frame can be made of wide channel bars set flush with the wicket jambs and riveted to the bands below the floor level and above the wicket arch, and to these channels the intermediate kiln bands can be riveted thus leaving the wickets clear.

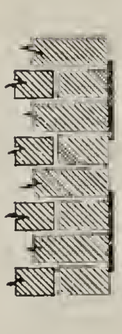


Fig. 96.

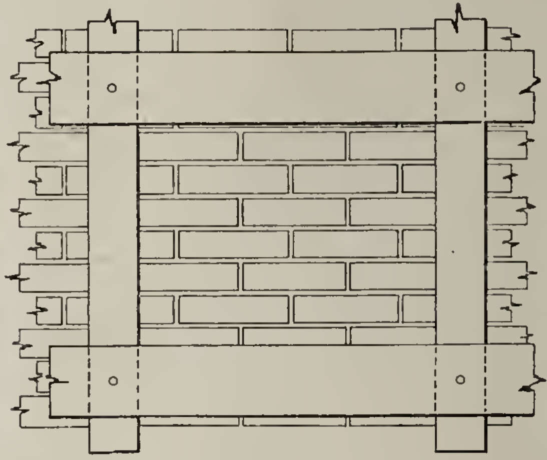


Fig. 97.

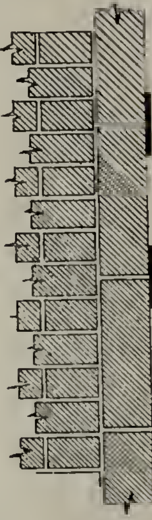


Fig. 98.

The bands should be spaced, so far as possible, to include every course of bricks as shown in Fig. 96, and where this is not possible, as in the lower kiln wall, vertical bands spaced 24 inches to 36 inches as shown in Fig. 97, should be used. In one instance a kiln was cased with 12 inch bricks on end and the joints covered with a narrow band as shown in Fig. 98.

A kiln properly banded will require 9 to 13 bands and, considering the cost of a kiln, and the losses resulting from a distorted wall, one can readily afford proper bands, if indeed he cannot go further and completely case the kiln wall with steel, and back up the casing with a porous insulating brick, and finally cover the crown deeply with ashes or some better material.

Such a kiln construction will result in:

(1) Direct fuel economy.
(2) Quicker burns with further fuel saving and less labor.
(3) Better results.

Many clayworkers save a little in the cost of installation and then for all time complain that the cost of burning and upkeep eats up all the profits of the business.

Up-and-Down-Draft Kilns.

There have been a number of up-and-down-draft kilns developed, but as a rule they have not shown sufficient merit over the simple up-draft or down-draft types to lead to any wide use, except in some one particular line of ware for which the kiln was developed.

The chief difficulty with them has been that the ware in the bottom of the kiln was subjected to the maximum flame temperature, resulting in overburning the bottom courses of ware or if not overburning, at least discoloring in consequence of flame contact and reduction. Another difficulty in some of the types has been to maintain the combustion flues, subjected as they were to such intense temperature and constructed of the usual kiln fire brick, often inferior in quality.

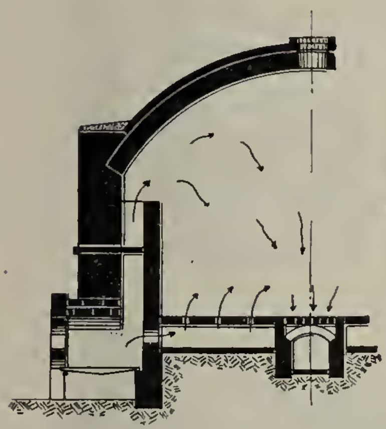


Fig. 99.

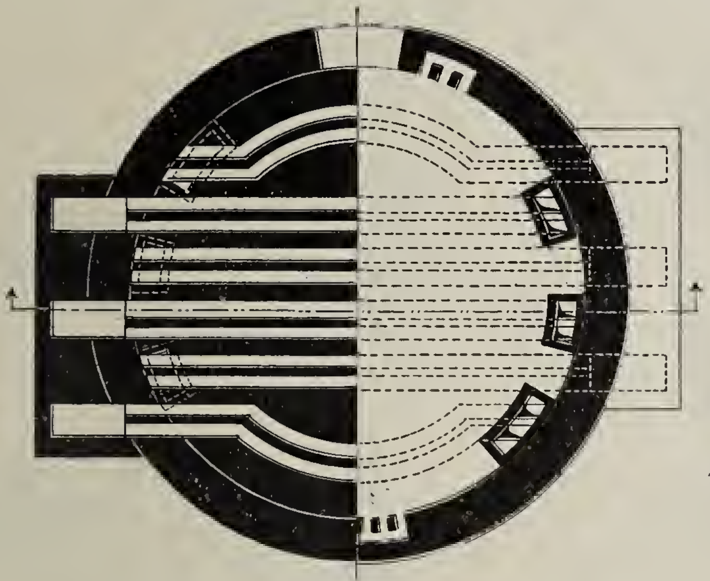


Fig. 100.

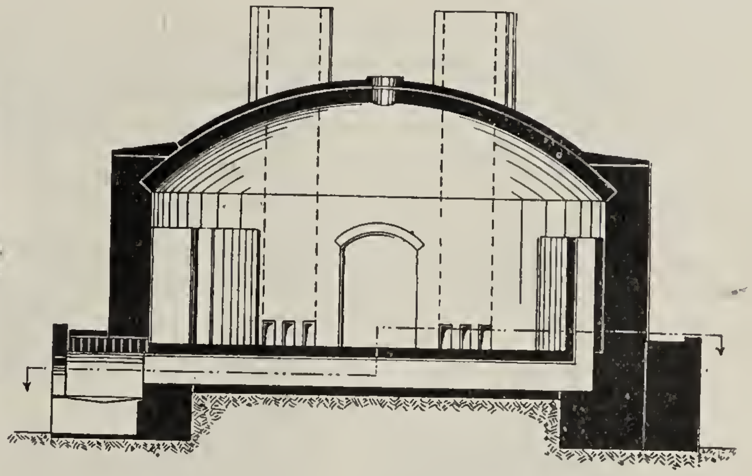


Fig. 101.

The early up-and-down-draft attempts were very simple as shown in Fig. 99, adapted to a rectangular kiln. An under floor flue connected the furnace with the interior of the kiln, and a damper controlled the bag outlet from the furnace. With this damper closed, and the throat to the under floor flue open, the gases passed under the floor, then up through the ware until caught and drawn down by the force of the draft. The draft flues might be parallel to the combustion flues extending from the bag wall to the center flue, instead of a single central draft flue with perforated top as illustrated.

Round kilns work out equally well with a series of radial flues—one set from the furnaces to the center for combustion flues, and the alternate flues from midway between the bags to the center for the draft flues, connecting with a center well, center stack, or wall stacks.

The throat to the under combustion flue could be easily fully closed with a fire clay block, or partially with fire bricks as the up-draft feature might require.

Up-draft water smoking is considered the most desirable, and a number of down-draft kilns have been designed for such up-draft work to be followed by down-draft burning.

The original Eudaly kiln, Fig. 80, had this feature. The radial flues were extended through the kiln walls and boxed in outside the walls. By closing the stack dampers, furnace doors and ashpits, opening the crown vent, and using the open ends of the radial flues as furnaces or air inlets the operation became up-draft, either for water smoking or cooling the kiln, but so far as our observation goes, little use was made of this feature of the kiln.

Any radial or cross head flue kiln could be adapted to this purpose, and several kilns offered to clayworkers have had the up-draft water smoking feature.

So far as the up-draft feature in the burning is concerned, practically the same results are obtained by openings through the lower part of the bag wall, and we frequently find such bag wall construction, generally, however, by building the bag wall in open checker work.

The Stewart kiln was a popular one in drain tile burning and to some extent in other lines of ware. Had the kiln generally been built of better material its use would have continued and been extended, but many installations were built of very inferior fire bricks instead of the best obtainable and in consequence there were many complaints in regard to the failure of the combustion flues after a short period of use, sometimes in the first burn.

Fig. 100 and Fig. 101 illustrate the principle of this kiln.

The furnaces are on opposite sides of the kiln and staggered to bring them in line with the combustion flues. Each furnace has two flues leading from it, under the floor, to a bag wall on the opposite side. The adjacent pair of flues leads from a furnace on the opposite side to a bag across the kiln, and thus, the floor system consists of alternate pairs of flues carrying gases in opposite directions, each pair having its furnace and corresponding bag. The floor is solid throughout and the outlets from the kiln to the wall stacks are in the kiln wall at or near the floor level.

The ware in the lower part of the kiln is burned by heat conducted through the floor, and the ware in the upper part of the kiln by direct contact with the gases from the bags. It could hardly be called an up-and-down-draft kiln, but the effect was the same in that the top and bottom were burned at the same time, and equally hard burned. The ware which receives the least heat, and which is the last to finish burning, is in or near the vertical center of the kiln.

The kiln was first designed and most generally built as a round kiln to which the principle is less adapted than to a rectangular shape. In the round kiln, it was necessary to set the ware with flues in the bottom to insure any degree of uniform draft over the kiln area. This feature was decidedly objectionable especially for drain tile for which the kiln was largely used.

The principle works out nicely in the rectangular kiln by alternating the furnaces in singles or in pairs with a cross draft flue to wall stacks as shown in Fig. 102. This enables us to build the kiln any desired length for large capacities which was not possible in the original kiln, with its fully solid floor and stack inlets above the floor level. We found it possible in such a rectangular kiln, to burn entire kilns of special ware which in the regular down-draft kiln could only be burned in the upper part of the kiln, and no special setting was required in the bottom as in the original kiln.

A recent up-and-down-draft kiln has a unique feature which may overcome the difficulty of the earlier types. In the latter the up-and-down-drafts were obtained by a distribution of the heat from one set of furnaces, and the intense heat essential for down-draft had a serious effect on the wares when diverted to the up-draft especially in view of the proximity of the ware to the furnace.

The kiln in question, shown in Fig. 103 and Fig. 104, uses two sets of furnaces, one for up-draft and one for down-draft, and each may be fired as the conditions require. The gasses from the furnaces for up-draft are led through main flues and distributed in cross flues with perforated covers (kiln floor) throughout the under floor system, then rise into the kiln and come in contact with the ware.

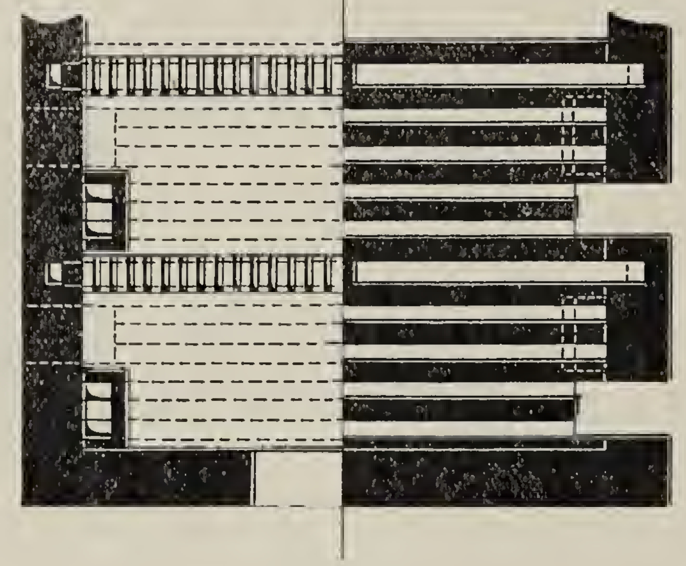


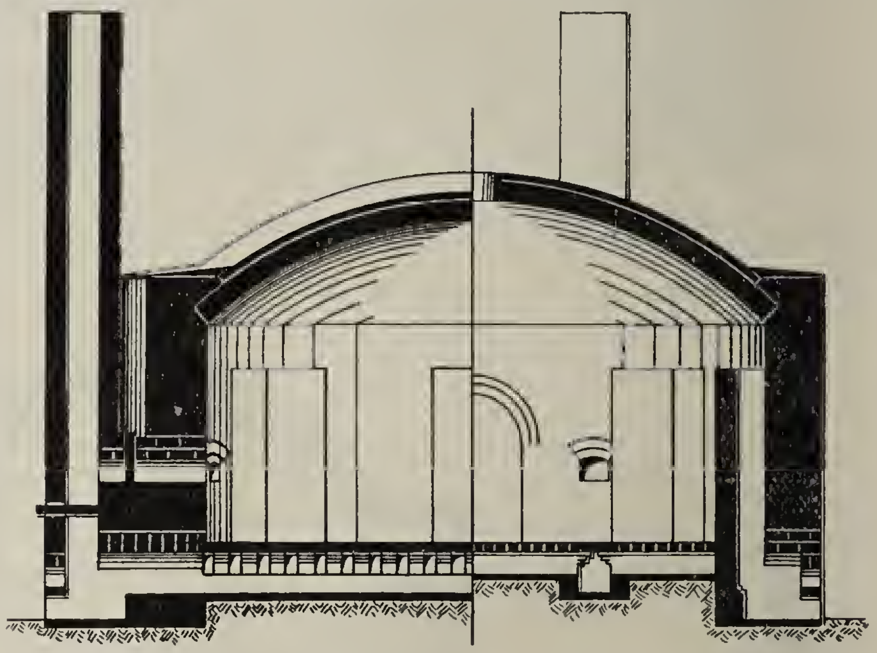
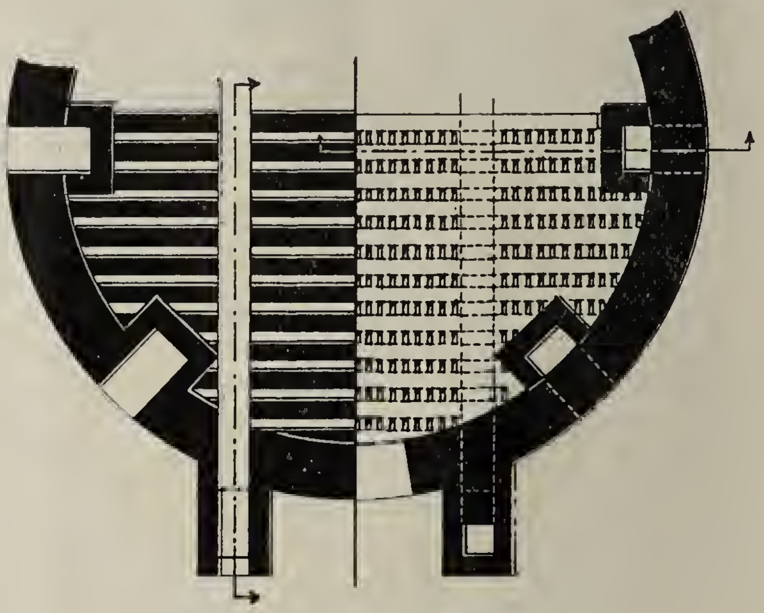
Fig. 102.

The stacks are approximately on the quarters of the kiln, and the inlets from the kiln are in the kiln wall three or more feet above the floor. The down-draft gases follow the usual course, up through bags and down through the ware, except that they do not pass to and through the floor as in an ordinary down-draft kiln, but instead are drawn off to the stack inlet above mentioned. The up-draft furnaces may be used for up-draft water smoking by closing the down-draft furnaces, opening the crown vent and closing the stack dampers. The illustration shows the up-draft furnaces in the base of the stock and by discontinuing the use of the stack furnaces except for draft intensity, with proper damper adjustment the burning operation could be entirely down-draft. The course of gases from the down-draft furnaces would be, up through the bags, down through the ware and perforated floor, into the collecting flues, thence to the main cross flues, through the up-draft furnaces, and up through the stacks. The furnace in the stack base with the connecting damper gives opportunity to heat the stack for increased draft to any degree and at any time during the burning operation.

The Gamble and Bryan up-and-down-draft pottery kiln is illustrated in Fig. 105 and Fig. 106. In general the firing is that of a simple up-draft pottery kiln as shown in Fig. 66 and Fig. 67, and it could be used exclusively for up-draft work with the crown vent open and the wall flue dampers closed. Between the radial flues from the furnaces is a duplicate set of radial flues, with floor inlets, connected with the wall flues. It is only necessary to close the crown vent and open the wall flue dampers to convert the operation to down-draft.

Another similar up-and-down-pottery kiln has the stacks for down-draft operation outside the kiln wall, but leading into the kiln main stack above the kiln crown and connected at the base with the bottom of the kiln.

We have mentioned the difficulty of maintaining under floor flues for burning bricks by up-draft, but it must be noted that pottery kilns are largely of this type, without serious failure in this respect, although the temperatures required are much higher. The only explanation is that pottery kilns are built of better material. The comparison in favor of the pottery kiln might be carried still further, for one has only to compare pottery and muffle kilns with the average brick and tile kiln to note the difference in the structures in every particular. If pottery kilns were built of the same materials used in common ware kilns, the pottery industry would be in a sad plight.



Above Fig. 103. Below Fig. 104.

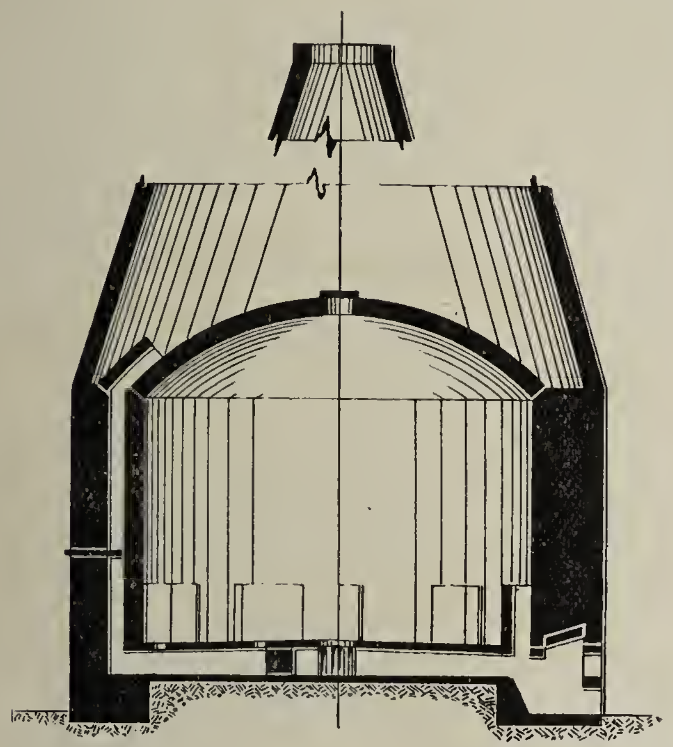
(To Be Continued.)

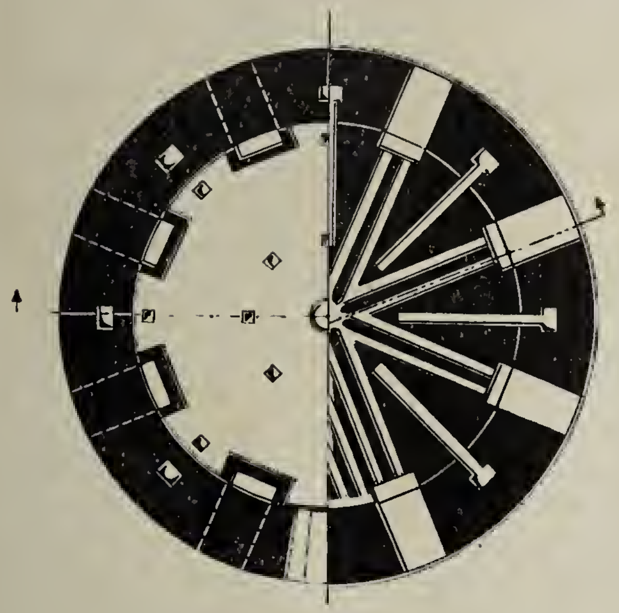
The whole clayworking industry is starting into a new day with a bright chance to set up new records of accomplishment all around.

Written for The Clay-Worker.

SEEN IN NEW JERSEY.

WHILE PRICES for common brick in New York are up about $2.50 a thousand, and from what they were a month ago the advance in New Jersey has been less. Perhaps that is partly due to the fact that prices were higher in New Jersey than they were in New York at the start. Prices in various sections of New Jersey vary somewhat, but they run about like this: Newark, $17.50, or thereabouts; Paterson, $18.00, a little more or a little less, depending upon buyer and seller; Jersey City, $16.00 to $16.50. One or two sales were made as low as $15.50, but no others were mentioned at that price. Along the Hackensack the sparing supplies left in hand are quoted at from $14.50 to $16.50 at the yards. Very little sale now, but some inquiry. In the Raritan section the price has run from $14.50 up, depending upon buyer and seller. No locality has any quantity in storage and in some instances buyers will have to await the first burning next season to get any brick of consequence. A few are in storage in different places, but the supply is so small that it really amounts to nothing. And with the outlook for building fair it means that brickmakers will have to work hard to satisfy bare requirements next season.





Above Fig. 105. Below Fig. 106.

As was mentioned last month Paterson is preparing to erect two grade schools which will cost, completed, about half a million dollars. They hope to get one of them ready for occupancy next fall and the other in the winter. The Board of Education has provided for the erection of a new high school which will cost approximately half a million alone, making about $1,000,000 new construction provided for by the Paterson Board of Education. It is quite impossible to say whether the high school will be built this year or not, but a start is to be made and the prospect for all is good. But this is not nearly all the construction which is coming in Paterson. A number of mills are needed and, according to those in position to know, they will be built this year, or a part of them will be. To what extent the development will be carried out is beyond saying today, but mill space is scarce and numerous manufacturers are seeking for new locations where they can expand. That means new construction. And brick manufacturers will benefit.

All the open yards in this state are in winter quarters now though as this is written early in the month the rivers have not closed and it would be possible to get to New York from any port in New Jersey without hindrance by water. December was as mild as October and January opened even more so. But unfortunately no brick were ready for shipment so deliveries could not be made under these favorable circumstances. Barges of coal and lumber are passing up the Hackensack as this is written. Not a particle of ice has appeared in either the Hackensack or the Raritan this season. Some of the Hackensack yards did not finish their burning until early in December, an unprecedented late date for drying and burning brick in this latitude. This merely shows the possibilities for continued production when demand requires, provided weather conditions are favorable.

Unquestionably the war has taught the clay men of New Jersey many things which they hardly realized before. They have learned to conserve on many phases of their work where they never have done so before. But this matter of conservation has a psychological influence which it was hard to define. Too much saving results in no development. If one attempts to save too closely he is almost in danger of overdoing it and refusing to invest where the returns would be profitable. Of course, this doesn't hold good in all cases, but it represents a possibility of conservation pushed to extremes. Careful management does not mean a penurious system. More or less liberality is required to keep up production. And with the demand to speed up production in everything this year the brick man doesn't want to conserve so much that he will starve his plant and prevent its proper development. More than one manufacturer has found it difficult to do business and conserve, in the degree which was recommended, at the same time. The worst of this danger has passed, however, and from what leading manufacturers in the clay industry say they intend to make up for what they have lost so far as possible. They are planning a development of their business to exceed anything they have undertaken before and the entire clayworking industry of the state will benefit proportionately.

Common brick has suffered somewhat in New Jersey by reason of the competition of other articles made of clay. Perhaps the effect has been less serious here than in some localities, but that it has suffered because of the liberal use of fireproofing, hollow blocks and various other clay products is sure. Common brick men haven't always seen this and perhaps they have permitted the competition to cause a greater reduction in the sale of their product than they should have done. On the other hand, the common brick business of the state has grown steadily regardless of the competition from other clay materials. Apparently the demand for new construction work has been sufficient to absorb a constantly increasing output. How long this increase can be maintained is a question which the future will have to decide. But apparently the outlook is by no means as discouraging to common brick manufacturers as some have attempted to prove. They are finding abundant outlet for their product and are looking ahead to still further growth of their business.

E. M. Rodrock, of the E. M. Rodrock Company, says that some inquiry is coming in for brick and hollow block, but as yet nothing of importance has developed. He looks for a fair business this year and a greater business than was ever known before for 1920. This seems to be grounded upon a knowledge of the difficulties which building men will encounter in getting money and other assistance this year. But prosperity is with us, he says, and is getting ready for his share.

A. L. B.

BUTTON HOLE TALKS.

Wholly a Difference of View Point.

THE CONCERT IN THE CLUB was over. There had been talent, both instrumental and vocal, and the whole function had been most enjoyable and an eminent success. We were down in the lounging room, comfortably seated and busy with good cigars, at peace with mankind, content and happy. Of course, the subject under discussion was music, its wonderful power and its effect on each person. I had confessed that I myself was not quite up on it and thought that really the sentimental association connected with an old refrain affected me most and that I could not read into music what others seemed to be able to, could not see the scenery that others seemed to nor read the intricate stories that others seemed to find in it, and were all hidden to my understanding. My companion, seemingly rousing himself from a period of meditation, took me in hand to explain—

W. D. Gates.

"Coming across on a liner a while ago I happened to be selected to preside at the regular concert for the benefit of disabled seamen. This, you will remember, is a regular, established function connected with each trip just as much, or even more, than the Captain's Dinner.

"Although we had a rather light passenger list, we gathered quite a good array of talent. The wife of a naval captain and her two daughters sang delightful southern songs, a retired business man gave a humorous recitation and enough others participated to make the thing a fairly successful event. There was an Italian opera singer who had been in America a short time years before, and was now going over for an engagement, who had a smattering only of English and was on the program for two selections. One of these had been given and vociferously received and then been responded to by the usual encore. A short time before his second performance was to occur, he came to me and said:

"'Mister Willigus, I am about to sing a little humorous Barcola in Italian, and I think an explanation should be made so they will surely understand it. It has to do with a man who was taking his family and his possessions away, moving away, going by boat across a bay to another—what you call him—town. He load them all in the boat, his belongings, his bed and his chair and his stove, all the things he use in his house, you know; oh, yes, and his wife, too. They start out and the weather he is fine, the sea she is level, what you say, smooth, the boatman he row the boat very good. The man he proud and happy, very content, everything good. They they get way out in the middle of the bay, when the wind blow, waves come high, boatman can no make her go, waves splash, wind howl, everything get wet. Sailorman say no good, can't make it, got to throw something overboard. Man say no, can't spare. Sailorman said then lose whole dam load. Man, wet and scared, looked at all his goods, his beds, his stove, his chair, his blanket, cannot make he mind which to throw over, want all them. Then he look at he wife, see she getting old and fat, and he throw her overboard.' Then he poked me in the ribs, smiled genially and said, 'You make explanation.'

"I thought it all over and it seemed feasible. I well knew that I myself never could read all that into one song, and it seemed proper that the audience should be steered right in the start, so they could follow the vocalized Italian. Of course I had hopes that the Italian gestures would help out in the understanding of the theme, but I felt that the audience were entitled to all available help anyway, so I went to it and gave his explantion as fully as I could, added a beaming smile and called him up.

"He sang something that might have been the chirping of the birds in the trees or anything else you could conceive, and, although, of course, being an Italian, he used his hands, nothing in it had the faintest suggestion to anyone in the audience of what I had described, and they all thought I had joshed the Italian. No, sir, its a bunco business. Its poetic imagination. Some one person may read all this into it, but no two will. The second one will read in an entirely different story. The Italian wasn't buncoing me, he thought it was in there, and it was for him, but not for the casual listener."

GATES

GETTING READY FOR THE SPRING DRIVE.

A report from Albion, Ill., a few miles east of Evansville, says that Superintendent J. C. Carlisle has a force of men at work at the Albion Shale Brick plant shaping the plant and machinery preparatory to starting work within the shortest possible time. Superintendent Carlisle thinks that everything will be in readiness to start the wheels rolling within a very short time. The company operates two plants and it is their intention to run both factories full time. The war hit the brick industry a hard blow and now since things are getting back again into normal shape the Albion Shale Brick Co. expects to operate both plants at full capacity and the officials of the company are looking forward to a prosperous year. Indications point to a great deal of building in cities and towns in southern Illinois this year. Carmi, McDeansboro, Equality, Olney, Newton, Noble, Mt. Carmel, Ill., Bridgeport, Shawneetown, Golconda, Elizabethtown, Mattoon, Effingham, Charleston and other towns are taking on new life and building operations are expected to show renewed activity by the first of March.

Mayor Benjamin Bosse of Evansville delivered his annual address to the city council of that city a few days ago in which he urged that all public improvements possible be made during the coming year. He said that the city was far behind in its building program and he wants to see many improvements made during the coming year.

A LITTLE Knowledge is a Dangerous Thing, in Clayworking Especially, as Many a Manufacturer has Learned to his Sorrow.

Written for The Clay-Worker.

BRICK AND BUILDING NEWS OF EVANSVILLE AND SOUTHERN INDIANA.

WHILE there has been little or no improvement in trade with the brick and tile manufacturers of Evansville and Southern Indiana during the past month, there is a great deal of optimism being indulged in and manufacturers feel sure that within a short time there will be a marked improvement and that 1919 will prove a splendid year for them. Everything points to a picking up in business and there is an opinion that building is going to take on new life. Mayor Benjamin Bosse of Evansville announced a few days ago that the city would make many improvements during the present year and that things were going to hum. It is expected that several streets will be improved and brick will be used on some of the streets.

John Andres, secretary and treasurer of the Standard Brick Manufacturing Co., says that things look brighter now than at any time since the closing of the great European war. A better feeling pervades the trade world and general business conditions are gradually improving. It is certain that by the first of March building operations will show new life and architects and contractors are planning a big year's work. The Standard Brick Manufacturing Co. has an ample supply of brick on hand, but many of the southern Indiana plants report their supply rather short.

It is expected the congregation of the First Baptist church at Evansville will build a new church during the present year that will cost in the neighborhood of $75,000. This church was planned several years ago but work on the same was postponed when the war came on. Several other Evansville churches are planning additions. A new school house is to be built at Otwell, Pike county, a few miles north of Evansville. The city of Owensboro, Ky., a few miles east of Evansville, will install a new sewerage system, that will cost several hundred thousand dollars. The old Rustan Hotel at Evansville, will be remodeled and overhauled. Several of the manufacturers at Evansville are planning new additions to their plants during the year. The future looks bright and everything indicates a rapid picking up in trade after the winter weather is over. A great deal of building is being done at Bicknell, Ind. A short time ago the Bicknell Improvement Co. let the contract for twenty-five dwelling houses and these are to be completed in February, when contracts for twenty-five more are to be let. Henry C. Kleymeyer, general manager of the Standard Brick Manufacturing Co. at Evansville, is on a committee that was recently appointed by the Evansville Chamber of Commerce to work out a plan for Ohio river terminals. The city of Memphis is now building river terminals that will cost in the neighborhood of $500,000. Many other cities on the Ohio and Mississippi river are planning terminals and with the building of these terminals and the completion of the locks and dams on the Ohio river, it is expected that the river trade "will come into its own" once more.

The Rowland Block Coal and Clay Co., an Ohio corporation doing business in Indiana, has changed its principal place of business in the state from Clay City to Terre Haute.

Sergeant Gilbert C. Landgrebe, manager of the Huntingburg Pressed Brick Co. at Huntingburg, Ind., who went from Huntingburg to Rolling Prairie, Ind., entering the Interlaken School for military training, has been transferred to Valparaiso, Ind., and assigned to clerical work in the quartermaster's department. He expects to be mustered out of service soon, when he will return to Huntingburg and re-open his brick plant, that has been closed down since he went into the service.

James Hill, receiver for the Rockport Drain Tile Co., at Rockport, Ind., in his final report in the Spencer county circuit court, states that the property of the company, both real and personal, was sold to Joseph Long, of Jay County, Ind. Since then the property has been sold to J. M. Buckner, of Louisville and the plant is now being used to re-dry tobacco that is purchased from southern Indiana growers.

The brick and tile manufacturers of southern Indiana are arranging to take back all their old employes who were called to the colors. The Standard Brick Manufacturing Co. at Evansville and the two large sewer pipe companies at Cannelton, Ind., lost a great many men through the draft, but every man who was called upon to serve his country is assured of having his job back in case that he wants it.

Frank Powell, formerly employed at the plant of the Crown Pottery at Evansville, died in a hospital a few days ago and his body was brought back to Evansville and given a military burial. He was wounded in action in France and when nearly well from his wounds was brought across from France and placed in a hospital in New York and while there he contracted pneumonia from which he died. He is survived by his mother, who lives in Evansville.

The pottery plants at Evansville are now being operated full time and indications point to a very busy year. The manufacturers are no longer bothered by the car shortage and labor scarcity. There has been no trouble in getting cars for several weeks past and as the men come back from the army, there will be less and less a labor scarcity. The large pottery plants in Evansville probably will be able to operate full time during the entire year.

A report from Madisonville, Ky., a few days ago stated that the business district of that city will be paved during the coming year and in all probability brick will be the material used. Several other cities in western and central Kentucky are going to improve their streets and brick manufacturers are looking for a nice increase in business because of these improvements. In the city of Evansville there are over thirty miles of improved streets and some of these brick streets that were put down twenty and thirty-five years ago are just as good as when the improvement was first made.

Brick and tile manufacturers of southern Indiana are interested in the statement made a few days ago by Edgar D. Bush, lieutenant-governor of Indiana, that the present session of the Indiana legislature would enact some kinds of good roads legislation. This is what is needed, especially in some portions of southern and south-eastern Indiana where the roads at certain seasons of the year can not be traversed at all. Vanderburg county, in which the city of Evansville is situated, will again take up a program of road building and improvement. During the war practically nothing was done in that line. It is predicted that the next ten years will see a wonderful improvement in the public highways of southern Indiana.

A HOOSIER.

A LOT of Knowledge Leads to Success and the Joy Thereof. Moral: Attend the National Convention, Pittsburgh, February 2-8.

NEW JERSEY CLAYWORKERS MEET

Hold Annual State Convention at New Brunswick December 17th—Interesting Program—Splendid Attendance—To Ask Legislature for an Appropriation for Ceramic Building.

TWO IMPORTANT things were done at the annual meeting of the New Jersey Clay Workers' Association in New Brunswick on December 17.

The first was the passage of a resolution offered by C. A. Bloomfield authorizing the appointment of a large committee to go before the legislature and undertake to secure an appropriation sufficiently large to enable the erection of a building suitable to house the School of Ceramics, which he alleged started in a barn, the only building available at Rutgers College.

This was followed later by a suggestion made by the new president, George H. Cook, to the effect that at the next meeting those who attend shall bring specimens of their products, these to be used as a nucleus for a permanent museum which shall adequately exploit the clay industry of the state.

Entirely apart from the excellent papers read, which were followed by lively discussions, these two important features made the meeting worth while. And both were received with enthusiasm. The gentlemen present fully intend to carry out both suggestions.

Patriotic Start.

In place of the patriotic resolution which all meetings of this character have been passing during the war this one gave a pleasant patriotic touch to the opening by singing a stanza of "The Star Spangled Banner" with President August Staudt at the piano. Aside from that all allusion to patriotism was omitted. President Staudt in opening the meeting took occasion to point out the important part that ceramics played in the war. We had to make what we did not have, but those problems were all successfully solved and now the problems of peace must be solved. To be sure of accomplishing this it is necessary that every clayworker in the state shall become affiliated with the organization. One hundred per cent. membership will help to make the association 100 per cent efficient. Every additional member makes the association that much more benefit to individual members and these benefits will reach their maximum when all are members.

Secretary George H. Brown reported upon previous meetings and told of the action taken when the Ceramic Society became a local section of the American Ceramic Society. An auditing committee was appointed to go over the treasurer's accounts and the association then elected the following officers for the ensuing year:

Delegates in Attendance at the Convention of New Jersey Clayworkers, New Brunswick, December 17, 1918.

Election of Officers.

President—Chas. H. Cook, Cook Pottery Co., Trenton, N. J.

Vice-President—Abel Hansen, Ford Porcelain Works, Perth Amboy, N. J.

Secretary and Treasurer—G. H. Brown, Rutgers College, New Brunswick, N. J.

Executive Committee.

Term Expires December, 1920.

Geo. E. Hoffman—Monument Pottery Co., Trenton, N. J.

Cyrus Borgner—Cyrus Borgner Co., 23d nr. Race St., Philadelphia, Pa.

Samuel Bedson—Elite Pottery Co., Trenton, N. J.

D. J. Fisher—Sayre & Fisher, Sayreville, N. J.

Everett Townsend—Robertson Art Tile So., Trenton, N. J.

Term Expires December, 1921.

August Staudt—Perth Amboy Tile Works, Perth Amboy, N. J.

A. M. Maddock—Thos. Maddock's Son's Co., Trenton, N. J.

R. K. Bowman—Trenton Fire Clay & Porcelain Co., Trenton, N. J.

Andrew Faltz—Lambertville Pottery, Lambertville, N. J.

Chas. A. Bloomfield—Bloomfield Clay Co., Metuchen, N. J.

In the absence of the newly elected president, Vice President Hansen took the chair for the morning session. President Staudt appointed C. A. Bloomfield a committee of one to escort the vice-president to the chair and introduce him to the convention.

Mr. Hansen acknowledged the greeting given him, but said he had no speech to make, and proceeded immediately to the business in hand, the first being a vote of thanks given the outgoing officers for their work during the past two years. The regular program was then taken up.

The first regular number on the program was a talk by D. F. Albery, of Woodbridge, N. J., on

Some Defects in Terra Cotta.

Mr. Albery discussed the black spots which sometimes appear in terra cotta, which he said were only symptoms of a disease that lies deeper. He explained how in investigating the cause of these spots he experimented with iron, bits of copper and bits of brass, and found that in one instance pieces of insulated copper wire caused the spots. Iron will also cause them. Copper melts at a lower temperature than is required for firing terra cotta, and makes a slag, while iron melts at a higher temperature and makes blisters. Iron is hard to grind and is easier found, while copper and brass are not so likely to be seen until they show their presence in the spots. He said the only remedy is absolute cleanliness of everything used in the handling of clay and extraordinary care to insure freedom from any of these foreign substances.

In the discussion C. A. Bloomfield emphasized the necessity of keeping everything perfectly clean and said that cars sent for clay are frequently those which have been used for other purposes and need to be examined and cleaned before the clay is loaded. He told of difficulties which once arose in his experience through a boat having been used for soft coal and the bits of coal in the clay caused spots in the product.

Mr. Jackson told of an instance where fire brick linings and melted copper caused trouble. Mr. Moore said that copper and iron pyrites will do the same thing. Others told of difficulties arising through failure to see that such objects are not in receptacles or elsewhere to become mixed with the clay.

Mr. Albery had with him a sample of white terra cotta in which a black spot, with a green border, about three inches long, appeared. It was commented upon as a remarkable example of the difficulties which sometimes confront the manufacturer of terra cotta.

Sagger Mixtures.

Prof. George H. Brown, secretary of the society, and instructor and investigator in the department of ceramics at Rutgers College, read a paper upon "Sagger Mixtures," which was highly technical and an able presentation of the subject. Prof. Brown said in part:

"The sagger question is serious. No agreement has been reached as to the clay to be used. Some mixtures are governed by the cost of the clay and often what is termed cheap clay will make a sagger of longer life than one made of the higher priced qualities.

"The breakage is large and is due to several reasons. Breaking unburned is due largely to lack of care in placing in the kiln. Its remedy is obvious. Breakage in heating is caused by too rapid heating. They must be thoroughly dried, and drying is sometimes inadequate. The water is too suddenly converted into steam in the texture and explodes, breaking the sagger into many pieces. The water all goes when the kiln is raised to a red heat, but care is required in burning.

"Breakage in cooling—Any clay will crack if cooled too rapidly. The same thing is true of all clay wares. Silica brick, for example, is sensitive to temperature changes, and cracks readily, and fire brick is also sensitive and must be treated with care. Saggers are liable to the same difficulties.

"Right handling will save many. They are broken when putting into or taking them out of the kiln. Sometimes in separating; again in setting on the floor. Care in handling under all these circumstances will go far toward removing much of this difficulty and saving many which are now lost through breakage.

"The average temperature in the kilns here is not above the 10th or 11th cone, and seldom goes above the 13th, as compared with 14th, 15th and 16th cones in Europe.

"Another cause is due to deformities and this may be caused by various influences, but perhaps chiefly by differences in consistency of clays which cause the sagger to be different in one place from what it is elsewhere and this naturally leads to breakage since it does not take the heat evenly."

The speaker here explained more thoroughly what he meant by expansion, and various other technical points by referring to charts on which the curves representing these changes were plotted. Porosity and shrinkage were shown on each of the charts and the relations of these two important factors were explained carefully by means of the curves which changed in marked degree under different methods of treatment.

"By mixing clays properly any strength of sagger can be obtained. Recent investigation has brought out considerable information upon this point and a number of clay mixtures have been prepared which insures better saggers. Practice in Europe follows a certain specified method and in some instances the same methods are followed here.

"In devising a method to overcome loss from deformation it was found that more open burning clay should be used in place of that which vitrifies too easily.

"Saggers must be as porous as possible. Cracking is often due to the high percentage of silica. All clays in which much sand is included, and red brick clays, are sensitive to temperature changes and cracking will follow their use. They crack in cooling because the difference in the clay and its sensitiveness to the change causes it to cool unevenly and that results in cracking. Ware having a liberal content of sand undergoes great changes in expansion and brings about a strain which leads to cracking. Introduction of a sand mixture always causes more or less cracking.

"It is necessary to know the composition of clays, especially the proportion of silica, and extra care must be taken to ascertain that in the form of flint.

"Kaolin is highly refractory and open burning. Yet you need not use kaolin if clay is sufficiently porous. Ten per cent. of kaolin improves sagger and other mixtures."

The speaker advocated the use of the wet pan method in mixing instead of the soaking pit. If slaking down is easy the pit method is not so objectionable. If prepared from the wet pan method the clay is mixed better. Many factors influence the life of saggers and it is necessary to know the clays used in the mixtures, then they can be treated in such a way as to save much of the breakage. If these suggestions are followed the speaker felt sure that saggers would be longer lived.

Fluxes in Porcelain.

F. H. Riddle, of the Bureau of Standards, presented a paper upon "The Effect of Some Fluxes in Porcelain."

It is impossible to reproduce this paper since it was based upon lantern slides and an exhibition of pottery under strong light which gave a clear impression of the coloring effect of different fluxes. It was interesting to note, however, that certain clays obtained in Florida, Delaware and North Carolina were substituted for ball clay with apparently equally satisfactory results. The difference in appearance of the porcelains in which they were used was too slight to be noticeable.

New Building for Ceramic School.

Just before adjournment for luncheon Mr. Bloomfield asked permission to say a word. He explained that the School of Ceramics was begun in a stable, that it has now reached a point where it requires a new building at least 25x100 feet, three stories high, and he offered a resolution for the appointment of a committee to go to the legislature and seek to obtain an appropriation sufficiently liberal to enable this necessary construction. The resolution was passed unanimously amidst applause.

AFTERNOON SESSION.

The afternoon session opened at promptly 2:15 o'clock. Vice-President Hansen appointed C. A. Bloomfield a committee of one to escort the new president, George H. Cook, to the chair, and introduce him.

Mr. Cook took occasion to thank the association for electing him president, and told them that he hoped to see the clay industry of the state become as important to New Jersey as the iron industry is to Pennsylvania. He said in part:

"We produce more varieties of clay ware in this state than any other state in the Union. We must take all parts together, the scientific and practical. Reconstruction means much and New Jersey has much to be proud of. She is rich in clay resources, but I am sorry to say she has not used them as well as she might. We want better clay and we want it better prepared. We want to produce the best in the world right here. I congratulate the clay men upon what has been done and I confess I am surprised to see how much they have accomplished.

"We should let the world know what New Jersey is doing in clay. Manufacturers should lend a small piece of ware which shows what they make for the nucleus of a museum. We can get all the money we need for a new ceramics building when we can show the legislature what we can do. Bring specimens to our next meeting for beginning a museum. Let us show the people of the state and the world what we are doing right here and now."

President Cook is to appoint a committee to discover what has been done by the industry for the war. And he assured the association that he wants their undivided help in working out the problems which confront the association in the reconstruction period.

Fuel Combustion.

The first paper of the afternoon was on "Fuel Combustion," by Henry Kreisinger, fuel section of the United States Bureau of Mines, Pittsburgh.

This paper was illustrated by lantern slides in which diagrams of furnaces, and diagrams showing how fire consumes coal and where the heat generated by combustion goes. He said that the important thing to learn first of any furnace is the right proportion of air and the right way to feed it to the fuel chamber. Approximately fourteen pounds of air are required for each pound of coal. The fourteen pounds of air is about 180 cubic feet and coal requires approximately 10,000 times its own volume of air. Too much air is usually admitted to the furnaces and loss results.

"Air must be brought in direct contact with the coal, seven pounds through the fuel and seven pounds over the fuel. The ratio of combustion is proportioned to the quantity of air. Air must be admitted as near the fuel as possible."

Most of the paper was dependent upon the slides and consisted largely of explanation of diagrams and pictures shown on the screen. It is impossible to make it intelligible without the slides to show what is meant.

"Future Kiln Development."

The above caption was the title of a paper read by Prof. Carl B. Harrop, department of Ceramic Engineering, Ohio State University. Judging by the interest which this paper excited and the fact that Prof. Harrop was allowed to long exceed his time limit, kiln development must lie very close to the heart of nearly all those present. And the presentation was masterly. Not only in the information it gave regarding the working of present kilns, but the promise of improvement to come in the future.

"What is the future of kiln development? How are present kilns unsatisfactory?"

Beginning his paper with descriptions of certain kilns he has seen at work, Prof. Harrop told of some large ones, at least 28 feet in diameter, burned off in 105 hours. Others 36 feet in diameter and others, down-draft kilns, 42 feet in diameter. A kiln on the Pacific coast is 100 feet long, but it would hardly pay to go over that. One has 166 chambers and each chamber is about 12 feet long.

He told of one in which there was a difference of 10 degrees centigrade between the top and bottom, burned off in 60 hours. It was 12 feet in diameter. In a terra cotta kiln 24 feet in diameter the temperature was 1,190 degrees centigrade and was the same at top, middle and bottom. He said he had many others which showed substantially the same range of temperature and the same performance from actual records.

"As long as we can increase the efficiency we should not cease to attempt it. In this country we have been blessed with abundant fuel. But efficiency must be obtained in some way and I have no hesitancy in saying that I believe the continuous kiln solves the problem. In Europe years ago they saw what was coming and developed a new kiln. Heretofore we have not been forced to economize fuel. Europe continues the usual, but here we go to the unusual. We have about 8,000 clayworking establishments and not over 350, or about 4 per cent., use the continuous kiln.

"In Europe fuel is scarce and labor is cheap. They had to develop something that would save fuel and use labor. Here fuel has been good and cheap and labor hard to get, in many instances, and high in cost. So we have used fuel rather than labor.

"Again, when they construct a kiln in Europe they take more care than we do. They work over the drawings for a long time, and when the kiln is built according to those drawings it will work perfectly. We make a hurried sketch and try it to see if it will work. If it doesn't, we throw it out and try something else. They are willing to spend more time in making their kiln and then they readjust it until it will work. And they keep at it until they get it so it will work. The principal trouble with the continuous kiln here is that it has not stayed with the original owner. If it doesn't work it is torn down and something else is put in its place.

"Coming to the more general use of the continuous kiln, or the more continuous methods of operating a periodic kiln, the latter is not satisfactory because you have all the objections of the periodic kiln with which to contend and few of the real benefits of using a continuous kiln. For example, the use or waste of the heat in a periodic kiln. This is about the way it figures:

Kiln Loss.	Loss per cent.
Flue gases	25.5
Taken by ware	12.2
Loss in ash	.4
Walls of kiln	58.5

"It takes a longer time to burn in a periodic kiln than in a continuous kiln. A tunnel kiln would be too expensive. As a kiln for heavy ware, brick and tile, the continuous kiln, with a movable fire is coming. But care must be used in preparing for feeding. I know of one kiln that was used for gas which was not practical. The feed was too long, but a change was made and the gas is now fed from two sides and it works well and economically.

"A tunnel kiln can be used profitably for small ware. The principal difficulty lies in getting an even heat over a cross section of the ware. Many methods have been tried, but all have failed thus far. All ware goes through a uniform burning, but sometimes it is not uniform everywhere. It is heated to some extent by the flue gases which in a periodic kiln are lost. Then it goes to the combustion zone. It works well for small ware. All setting is done at one place and all firing at one place. Takes much less insulation.

"Kiln repairs are a big item. In one kiln I know the repair cost is 50 cents per 1,000 brick. It gets out of shape as it heats and cools.

"We have altogether 48 tunnel kilns in operation, mostly for small ware. It takes cone 4 to get the same result that can be obtained by cone 2 in the other type. For small ware the muffle kiln leads. Small ware must be saggered, but when it is saggered, why not burn with an open fire?

"I am designing a new kiln now with two fire zones instead of one. I hope to get rid of the danger of vitrification without running up the heat. We have much to learn about kilns, but I am convinced that we are making progress and that we shall ultimately evolve a kiln which will meet all our requirements and economize both fuel and labor."

Much of this paper took the form of a chalk talk on the blackboard, which illustrated by diagrams drawn as he talked the principles about which he was speaking. The discussion was listened to with the closest attention throughout.

The Dryer Question.

The last number on the program, "Solving One of the Clay Manufacturers' Great Problems," was to have been presented by J. L. Buckley, of Philadelphia, Pa., but as Mr. Buckley was unable to attend, Paul S. March of the Philadelphia Textile Machinery Company, proved a very able substitute. He spoke of the important factor of drying and described the Proctor dryer which is built by his company and which until the past two years had been unknown in the clay trade. The address was well illustrated with pictures of installation of the dryer at the plants of the Harbison-Walker Company, of Pittsburgh, Pa., and the General Electric Co., Schenectady, N. Y.

About sixty-five members registered, including the following:

G. H. Brown, Dept. of Ceramics, Rutgers College, New Brunswick, N. J.; Edward C. Stover, Trenton Potteries Co., Trenton, N. J.; Charles J. Hudson, Norton Company, Worcester, Mass.; Fred Sauereisen, Empire China Works, Brooklyn, N. Y.; John M. Kreger, The Monument Pottery Co., Trenton, N. J.; J. F. Morton, 54 S. Hermitage Ave., Trenton, N. J.; R. H. Minton, General Ceramics Co., Metuchen, N. J.; D. F. Albery, Federal Terra Cotta Co., Woodbridge, N. J.; Andrew Faltz, Lambertville Pottery Co., Lambertville, N. J.; D. J. Fisher, Sayre & Fisher, Sayreville, N. J.; Harry R. Walch, Empire China Co., Brooklyn, N. Y.; Louis Pohel, The Monument Pottery Co., Trenton, N. J.; John F. Hutchins, Bellmark Co., Trenton, N. J.; Paul G. Duryea, Cook Pottery Co., Trenton, N. J.; Abel Hansen, Fords Porcelain Works, Perth Amboy. N. J.; R. E. Anthony, Empire China Co., Brooklyn, N. Y.; A. R. Campbell, Metuchen, N. J.; H. W. Moore, Atlantic Terra Cotta Co., Perth Amboy, N. J.; Leslie Brown, Lenox, Inc., Trenton, N. J.; William Chell, Empire China Co., Brooklyn, N. Y.; August Staudt, Perth Amboy Tile Works, Perth Amboy, N. J.; Chas. T. H. Phillips, Sneyd Enameled Brick Co., Trenton, N. J.; E. C. Hill, N. Y. Architectural Terra Cotta Co., Long Island City, N. Y.; Chas. E. Jacquart, Amer. Enameled Brick and Tile Co., South River, N. J.; O. O. Bowman, 2d, J. L. Mott Co., Trenton, N. J.; Francis H. Burroughs, Star Porcelain Co., Trenton, N. J.; Frank W. Morris, Greenwood China, Trenton, N. J.; James McAllister, J. L. Mott Co., Trenton, N. J.; Paul D. March, Philadelphia Textile Machinery Co., Philadelphia, Pa.; Fred McCarthy, Sayreville, N. J. (Sayre & Fisher Co.); Chas. F. Blume, Henry Maurer & Son, Maurer, N. J.; P. C. Buechner, Crossman Co., Sayreville, N. J.; Charles W. Crane, C. W. Crane Co., 17 Battery Place, New York, N. Y.; D. H. Applegate, Jr., Crescent Brick Co., Red Bank, N. J.; H. Schmidt, Roessler & Hasslacher Chemical Co., 100 William St., New York, N. Y.; H. E. Maddock, John Maddock & Son, Trenton, N. J.; John B. Maddock, Jr., John Maddock & Son, Trenton, N. J.; Lewis Albrecht, General Ceramics Co., New York, N. Y.; L. W. Allison, "Brick & Clay Record," Newark, N. J.; E. C. Millen, "Brick & Clay Record," Newark, N. J.; John H. Leisen, Clay Miner, Woodbridge, N. J.; Carl B. Harrop, Dept. of Ceramic Engineering, Ohio State University, Columbus, Ohio; Edwin F. Knight, Newark, N. J.; Hilmar Mueller, Mueller Machine Co., Trenton, N. J.; Everett Townsend, Robertson Art Tile Co., Trenton, N. J.; Alfred C. Grainger, Trenton, N. J. (801 Stuyvesant Ave.); Burton H. Allbee, "The Clay-Worker," Paterson, N. J.; C. G. Brinkman, Clay Miner, Fords, N. J.; C. S. Maddock, Jr., Thos. Maddock Sons Co., Trenton, N. J.; F. S. Thompson, New Brunswick, N. J.; Cyrus Borgner, Cyrus Borgner Co., Philadelphia, Pa.; Chas. H. Cook, Cook Pottery Co., Trenton, N. J.; Fred A. Whitaker, General Ceramics Co., Keasbey, N. J.; Chr. Mathiasen, South Amboy Terra Cotta Co., South Amboy, N. J.; Chas. A. Bloomfield, Bloomfield Clay Co., Metuchen, N. J.; Hubert Somers, Somers Brick Co., Atlantic City, N. J.; Elton Braddock, Somers Brick Co., Atlantic City, N. J.; Henry Kreisinger, Bureau of Mines, Pittsburgh, Pa.; Joseph Boughey, Chas. Engelhard, Newark, N. J.; F. H. Riddle, Bureau of Standards, 40th & Butler Sts., Pittsburgh, Pa.

INTERESTING SIDELIGHTS ON THE NEW JERSEY CONVENTION.

The meeting was held in the fine arts room in the Queens buliding at Rutgers College. By the way, Rutgers College was formerly Queens College, when Columbia was Kings College. This building was erected in 1809, is of stone and the stairs and floors are worn deep with the tramp of many feet through the more than a century of its existence. While most of the new buildings exemplify the architectural beauty and the utility of brick, the fathers who erected the Queens building had not then learned the value of brick for that purpose. They felt that stone represented all they wanted to express architecturally and so they used it. The windows in this building have the deep window seats and the windows are small lighted, with 18 panes to the window.

New Brunswick has maintained the New Jersey tradition to build with brick. Most of its large buildings, some of its handsomest residences and its factories are all of brick, while brick constitutes a larger proportion of the paving for its streets. It is an example of how brick can be attractively utilized in a city in many different ways. Burned clay has been used by the builders of the city with discretion and a due understanding of its value as a building material.

Mr. Norton, of the Norton Company, Worcester, Mass., was present. He told of the difficulties of manufacturing in New England since the war reduced the supply of labor, hampered transportation and reduced, or entirely stopped the supply of coal. But he felt confident that a better day has come to New England and that now the war is over brick men will enjoy a good business.

August Staudt couldn't have done a more graceful thing when he opened the meeting than to ask for the singing of "The Star Spangled Banner." He made it the more impressive by presiding at the piano himself.

When President George H. Cook expressed his desire to have the clay products of the state properly exploited he touched a popular subject. They all felt the same way. Not even the inhabitants of the state know what an extensive industry it is. They have a vague idea that it is something worth while, but just what they do not know. Exploitation such as he mentioned would leave no excuse for them not to know and it is quite probable that they would come in time to recognize its importance. That subject ought to be one that would interest many outside of the clay industry. It is such an important and indigenous industry that it should interest many besides the clay men themselves.

TALK TO CONGRESS.

Congress needs talking to. And that doesn't mean that this congress is any more lacking in ideas and convictions than any other congress, but it does mean that there are more issues of importance at stake. Congress is there to represent the people, and to do this properly congress must know what the people desire, and what the people need. What simpler or more direct method is there for keeping congress informed of the needs and desires of the people than for the people to tell it to them? There has been entirely too much holding back on the part of business men, too much reticence, followed by a too general criticising of congressmen for being politicians instead of business men. If there is one thing a congressman prefers to do it is that thing which will be most pleasing and satisfying to his constituency. Too often he has had to guess at the desires of the business part of that constituency, and naturally he sometimes guesses wrong. It is plainly up to the business men of the country to do more talking and writing to their congressmen, so that the congressmen may be informed of their desires and needs in connection with the questions of the day. Talk to congress before it acts; don't wait till afterwards and then fuss because you think it didn't act right.

STONE CRUSHING.

Entirely aside from railway ballast, which used to be the main outlet for crushed stone, there are two lines of development now that because of the growing possibilities should be of interest to those clayworkers having suitable stone on their property holdings. One is the stone used in road building in which almost any kind of stone can be used. The other is the widening use of ground limestone for farm fertilizing. This calls for high calcium carbonate limestone, usually reduced so that it will go through a ⅜ screen. The next few years promise big developments in both these lines.

REMINISCENCE-

A Soulless Corporation.

THERE crossed the Great Divide a few days ago, one whose life was a model of modesty, shunning the limelight, yet strong in features which make a real man, and blessed with a mind that made him a pioneer in one of the great brick industries of the United States—the late Henry W. Eliot, head of the Hydraulic Press Brick Co., of St. Louis.

The passing of this man closes the book on the original founders of this great institution and it would seem opportune to open a book revealing the characters of the men who built it from nothing to $10,000,000.

No doubt there are many interesting incidents in the life of any big concern and the history of the Hydraulic Co. is filled with them.

One comes to mind at this time. It was in the early '90's, when the offices of the company were located in the Odd Fellows Building on 9th and Ohio streets. To make the story effective, it will be necessary to describe the location of the office. The corner room housed the bookkeepers and it must be borne in mind these rooms were more than 20 feet square. In one corner a space was partitioned off for the one stenographer employed; a bell, connecting with various buttons of the officers, tinkled at times, above her desk. She was of Irish extraction and her ancestors, from all indications were regular visitors to Donnybrook Fair when the order of the day was, "If you see a head hit it."

Next to this office on the east was the general sales office. Next eastward was divided in a manner which afforded a large ante-room and two smaller offices facing on Olive street. The first was occupied by Mr. Chauvenet, assistant treasurer, the second, Mr. Eliot, secretary-treasurer. Eastward of this room another room similarly divided. The first, the old bookkeeper, Col. F. F. Fletcher, a Civil war veteran, who had been with the company since its organization, and lastly the office of the president, Mr. E. C. Sterling, all of whom are now numbered with the "great majority."

On this occasion the three officers were in Mr. Chauvenet's office discussing among other things the question of getting a stenographer who could do more work or rather do the work of three. It was deemed necessary to make a change and Mr. Sterling, who was standing, looked down at Mr. Chauvenet and said, "Well, get rid of her." Turning to Mr. Eliot, he said, "Well, Eliot, you fire her." Eliot replied, "No, I didn't hire her." "Well," said Sterling, "send her into my office and I'll do it." So the button was pushed, the small heels came clattering down the rooms and, stopping at the first office, book in hand, the lady was informed that Mr. Sterling wanted her. She swished out, entered Mr. Sterling's office, and in a few moments sobs could be heard with low tones of apparent sympathy. The agony was over and, passing the door of Office No. 1, not a glance favored the occupants. In a few minutes Sterling came back, resumed his characteristic attitude against the door, and looked down upon the laggards that refused to do their duty. One looked up, then the other—not a word. The suspense began to pall on them and finally one of the culprits asked, "Well, you did it?" Sterling replied, "Yes, I raised her salary ten dollars a month," and that was the soulless corporation of that day. "OLD TIMER."

Those who feel a desire to co-operate in movements to provide training for crippled soldiers should get in touch with the government authorities having this work in charge instead of joining some private or independent movement of this kind. The percentage of cripples is not so great as some think, and steps are already being taken to provide their vocational training.

Slags and Their Relation to Refractories.

AS STATED IN THE last chapter on the Classification of Refractories, a division of refractoriness into classes will then be made primarily according to refractoriness and secondarily according to the behavior of the material toward acid or basic compounds brought into contact with it.

Reactions producing acid slags demand refractories of an acid character and basic slags, basic. There are also some neutral refractories which are often used in both cases. Where the chemical action of the slag is very strong, neutral materials are sometimes used to replace basic materials. Purely acid or purely basic conditions seldom exist, so that a compromise is usually applied and increased refractoriness considered before other influences.

It is very evident, from the above statements, that an engineer who is going to make or use refractories in a successful way should have a knowledge of the physical chemistry of silicate formations and other reactions occurring in metallurgical work.

"A slag† is one of the products resulting from the fusion, under either oxidizing, neutral or reducing conditions, of various kinds of ore, or certain intermediate metallurgic products, with or without fluxes, and is usually either, first, a silicate of earthy and other bases; second, a phosphate, or a mixed phosphate and silicate; third, oxides of various bases, or mixed oxides and silicates; fourth, or any of the above, with an admixture of fluorides. The slag is usually the waste product of the furnace and is separated from the valuable products, such as the metal, alloy or bullion, matte (artificial sulphides of certain metals), etc., in a hot fluid or semi-fluid condition, by means of specific gravity separation."—"Broadly, it may be stated that the formation of minerals in silicate magmas at ordinary pressures, as is the case in metallurgic work, is determined by the chemical constitution of that magma. The minerals are formed by the action of the chemical equilibria of the chief constituents, viz., by the law of 'mass action.' Such factors as time of cooling, temperature to which the molten mass is heated, etc., play practically no part in the formation of the minerals."

There are a large number of hypothetical hydrates of silica which are possible of existence, and a considerable number of the silicate minerals are probably salts of these hypothetic acids, but of most importance by far are the two silicic acids which have been isolated, namely, ortho-silicic acid, H_4SiO_4 or $2H_2O.SiO_2$, and the metasilicic acid, H_2SiO_3 or $H_2O.SiO_2$. Practically all the minerals found in slags are salts of these two silicic acids. Only one mineral in slags is known which corresponds to the hypothetic silicic acid—H_6SiO_5 or $3H_2O.SiO_2$, a sub-silicate, and only one which corresponds to the hypothetic acid—$H_8Si_3O_{10}$ or $4H_2O.3SiO_2$, a sesqui-silicate. The following table shows the nomenclature adopted for the classification of the slags and minerals found in slags:

CLASSIFICATION OF SILICATES.

Ratio $\frac{\text{O in base}}{\text{O in acid}}$	Formula RO base	Formula R_2O_3 base	Metallurgic Nomenclature	Chemical Nomenclature
Less than 1	R_3SiO_5	R_2SiO_5	Subsilicate	
1	R_2SiO_4	$R_4Si_3O_{12}$	Singulosilicate Monosilicate	Orthosilicate
1.5	$R_4Si_3O_{10}$	R[illegible]Si_9O_{30}	Sesquisilicate	
2	$RSiO_3$	$R_2Si_3O_9$	Bisilicate	Metasilicate
3	$R_2Si_3O_8$	$R_4Si_9O_{24}$	Trisilicate	
4			Quadrisilicate	

The classification is based on the relative amounts of oxygen in the acid and base radical of the salt. Thus in the silicate $MgO.SiO_2$ or $MgSiO_3$, the oxygen in the base, MgO, is to the oxygen in the acid, SiO_2, as 1 is to 2. The mineral is therefore a bisilicate or a metasilicate. In the mineral $2MgO.SiO_2$ or Mg_2SiO_4, the oxygen in the base, MgO, is to the oxygen in the acid, SiO_2, as 1 is to 1. The sesquisilicate, ratio

$$\frac{\text{O in acid}}{\text{O in base}} = \frac{1.5}{1.0}$$

is probably a mixture of monosilicate and bisilicate, as follows: $(R_2SiO_4) + 2\,(RSiO_3) = R_4Si_3O_{10}$. The subsilicate in the above table is but one of many possible. Any slag will be termed a subsilicate when the above ratio falls below one. In the example above, the ratio is 2/3."

Harvard** states that besides silicic acid we less frequently come in contact with the salts of phosphoric, boric, titanic, plumbic, bismuthic, antimonic and arsenic acids, the halogens, alumina and ferric oxide. Sometimes these metal oxides act as bases and occasionally as acids. Bismuthic oxide, for example, attacks linings of both silica and magnesia, forming, respectively, bismuthic silicate and magnesium bismuthate. The temperatures at which these slags form vary. As a rule the slags which have equal quantities of acid oxygen and basic oxygen, namely, the singulosilicates, have the lowest temperature of formation. Then the temperature required to form the slag and also that demanded to keep it fluid will rise both as the slag becomes more basic (subsilicate) and as it becomes more acid (bi and trisilicate). Again, the formation temperature of each class varies according to the base or bases composing it. All magnesia silicates are difficult to form and to keep liquid; iron silicates are much more tractable."

The Physical Constants of Slags.*

Formation Temperatures of Slags.—"The temperature necessary to cause the various ingredients of the final slag to unite chemically and go into solution is known as the 'formation temperature' of the slag. This formation temperature, for any given mechanical mixture, is a function of the size of particles comprising the mixture and of time. This fact may be readily demonstrated by the ordinary Seger cones, used for the determination of temperatures."

"It has been shown by Hofman[1] and Gredt[2] that in determining the formation temperatures of mechanical mixtures of a series, a curve results, and this has been shown by Vogt to be roughly parallel to the freezing-point curve of the series formed by the mineral entities to be expected from the chemical composition of the mechanical mixtures. It may thus be stated that the formation point curve of a series of mechanical mixtures of silica and bases is parallel to the freezing point curve of the corresponding formed slags, but lies at a higher level.[3] The formation temperature may be very appreciably higher than the freezing temperature of the corresponding slag, depending on the factors mentioned; in some cases from 200 to 300 degrees higher than the freezing point. It is this formation temperature which is of most interest to the metallurgist, but since it is really not a definite temperature, but varies with certain factors, and is better represented by a range or interval of temperature, the freezing point furnishes the most definite information upon which the formation temperature data may be based."

Other physical constants include:

Total heat required to form slags.

The Net Total Heat of Formation.

The Specific Heat of Slags.

The Latent Heat of Fusion of Slags.

"The Viscosity and Superheating of Slags. The viscosity, or resistance to flow, of slags is of as much importance from a metallurgical standpoint as is the melting-point. Many slags of low melting point are so viscous at that temperature that they will not flow freely from the furnace, in fact may not flow at all." * * * * * "With any slag of given composition fluidity increases with a rise of temperature, but this increase of fluidity is by no means the same for different slags for the same increase of temperature." * * * * * *

"From experience it may be stated that:

1. The viscosity of slags increases, other factors being equal, with the degree of acidity (i. e. silicate degree) above the ortho silicates. The more acid silicates are decidedly more viscous than the more base silicates, at the same temperatures (referring to the melted slags).

2. As regards bases present, FeO decreases the viscosity, and MnO acts in a still greater intensity in this direction; PbO has the same effect. In the Ca-Mg silicates with some Al_2o_3, viz., blast furnace slags, those high in Mg are more thinly fluid than those high in lime. The effect of MgO is, however, not nearly so pronounced as that of FeO or MnO. In basic slags, i. e., low silicate degree, the chief base being lime, Al_2O_3 has the effect of increasing the fluidity, but in acid slags the effect of Al_2O_3 is to markedly increase the viscosity, when it amounts to more than 10 per cent.

From the glass industry it is known that the presence of much K_2O and Na_2O in acid lime silicates decreases the fluidity, the effect of K_2O being more pronounced than the Na_2O."

Harvard states[4] that it is very necessary for the engineer to determine and understand the nature of the slag, which is to be made, before he proceeds to construct his furnace. A lead-smelting furnace slag, for instance, is not completely satisfied with silica; it will extract this acid even from a fireclay brick lining. Sulphides and arsenides produced in metallurgical operations, such as matts and speiss, which are the names given to the precious and base-metal-bearing sulphides and arsenides of iron, also react with the silica of the lining. Thus: $FeS+SiO_2+O_3=FeSiO_3+SO_2$.

The oxygen may be provided by some peroxides of iron present in the brick or by one of many other sources. Accordingly magnesia is preferred as a lining in crucible or blast furnaces. It is, however, too expensive to use in the lining of settlers; these are removed whenever the settler freezes up, which may be a weekly occurrence. Sulphides penetrate into the brick lining rapidly and, in cooling and crystallizing, disrupt the brick. They also agglomerate so firmly to the surface that, in removing the matte from a settler, this will carry much of the lining with it. A dense material, especially when basic, is much less pervious to such attacks. The most resistant material is, however, water cooled iron or steel in the form of jackets.

An excessively acid slag will attempt to go into combination with a basic lining and should be made in an acid-lined vessel. The physical properties must also be considered in determining the suitability of refractories for various purposes. Dense material and burned and vitrified products wear better than light porous and raw refractories, although these are often better insulators. We dare not insulate too thoroughly, as a rule, because in absorbing much heat the material undergoes many physical changes which render it less resistant, and it has been found wiser to waste some heat rather than to endanger the life of the lining."

TWO SECTIONS OF AMERICAN CERAMIC SOCIETY COMBINE.

December 19th, at a joint meeting of the Pittsburgh District Section and the Beaver Section of the American Ceramic Society at the Mellon Institute, University of Pittsburgh, these two sections were merged into one to be known hereafter as the Pittsburgh District Section. The following officers were elected: Chairman, R. R. Hice, State Geologist, of Pennsylvania; vice-chairman, C. R. Peregrine, of the Macbeth Evans Glass Co.; treasurer, Thomas Sant of John Sant & Sons Co.; secretary, F. F. Riddle, Bureau of Standards; councillor, F. W. Walker, Beaver Falls Art Tile Co All ceramists in the Pittsburgh district are invited most cordially to join the Pittsburgh District Section, whether they are members of the A. C. S., or not. The dues are $1.00 a year.

The program which had been arranged for the meeting was varied and afforded an opportunity for those in attendance to learn something of the newer developments in ceramics, as the list of papers read would indicate.

Industrial Research, Dr. E. W. Tillotson, Mellon Institute; The Effect of Some Fluxes on Porcelain, F. H. Riddle, U. S. Bureau of Standards; The Influence of Some Ball Clays Upon the Casting of Clay Wares, J. W. Wright, U. S. Bureau of Standards; The Hydraulic Properties of Calcium Aluminates, P. H. Bates, U. S. Bureau of Standards; Note on the Electrical Resistance of Porcelains at Temperatures Up to 800 Degrees C., A. V. Bleininger, U. S. Bureau of Standards.

What is doing at the peace parleys will be interesting, but some of the parleys at home about business are of more immediate importance to the average man.

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†See Principles of Metallurgy, by C. H. Fulton.

**Refractories and Furnaces.

*Fulton on Principles of Metallurgy.

[1] Hofman, T. A. I. M. E., Vol. XXIX, p. 682. The temperature at which certain Ferrous and Calcic Silicates are formed, etc. [2] P. Gredt. Stahl und Eisen, 1889, II, Vol. IX, p. 756.

[3] Vogt, ibid., Vol. II, p. 92.

[4] Refractories and Furnaces.

AN OLD AND WELL ESTABLISHED FIRM INCORPORATES.

A CARD OF MORE than passing interest has been received from A. S. Reid & Co., Inc., announcing that beginning January 1, 1919, the business conducted by A. S. Reid, of Newark, N. J., trading under the firm name of A. S. Reid & Co., would be conducted as a corporation of the same name. The difference is that Mr. Reid, one of the livest wires in the face brick game, now has associated with him under the firm name of A. S. Reid & Co., two more live wires, Edwin F. Knight and William W. Oliver. Mr. Reid is president and treasurer of the new corporation, Mr. Knight, vice president and manager, and Mr. Oliver is secretary.

A. S. Reid is one of the well-known characters in the clay working fraternity. He entered the employ of the Penn Buff Brick and Tile Company in 1896, that company manufacturing face brick, and later they began the manufacture of enameled brick under the name of the Blue Ridge Enameled Brick Company. At this time Mr. Reid was the sales manager of that company and his travels took him from coast to coast and he gained a wide acquaintance. He also opened a face brick office in Newark in 1902, which soon developed into considerable magnitude, and in 1909 he resigned his position with the Blue Ridge Enameled Brick Company and devoted his entire attention to his own business. In 1911 he, with others, organized and opened an office in Philadelphia and has developed a large business at that point. He has always felt it to be good business policy for his associates to be interested with him whenever possible, and for that reason decided to incorporate the Newark business. A dinner was given at the Down Town Club the evening of January 2 for the purpose of announcing to some of his friends the incorporation of the new company.

A. S. Reid, Newark, N. J.

Edwin F. Knight, vice president and manager of the corporation, entered the employ of the Bradford Pressed Brick Company at Bradford, Pa., in 1906, as bookkeeper and office assistant, and later became the sales manager of that company. While Mr. Knight was in Bradford he became quite well known to the trade through his representation of the merits of "Bradford Reds,' and later was the secretary and one of the incorporators of the Bradford Fireproofing Company, this being the first company in Western Pennsylvania to manufacture hollow tile from shale. He felt that he should have greater experience in the sales end of the business and in 1913 removed to Buffalo as manager of the clay products department of the Buffalo Builders Supply Company, and afterwards organized the Buffalo Clay Products Company, confining his activity entirely to the sale of clay products until he went to Newark, in June, 1918, where he was associated with Mr. Reid.

William W. Oliver, familiarly known throughout northern New Jersey as "Billy" Oliver, has been with Mr. Reid since the summer of 1906, and through his faithful and earnest efforts he has built up a reputation as a "a hustler" in his line of business.

BRICK STRUCTURE CONTRACTING.

A subject that merits attention on the part of every individual brick manufacturer, is that of brick structure contracting. Plainly one of the limitations to development in the building brick business is furnished by the contractors, or rather the lack of contractors. We have heretofore given considerable attention to the subject of brick layers and the necessity for training young men in the art of laying brick. Also, this subject is still worthy of attention, yet as a supplement to it, there is the other subject of the brick contractor which in some respects is equally important. The paving brick manufacturers found this question of enough concern in their business that it received considerable attention at a recent meeting being touched upon by the officials of the paving brick associations and others. There is really more urgent need for attention to the subject of structural brick contracting than to that of paving brick contracting, and it is something that will of necessity have to be taken up before building brick can make the full measure of progress that the trade hopes to see it make.

There are really two lines of thought here which merit active attention. One involves the question of whether brick manufacturers themselves should take up estimating and contracting for brick work, while the other has to do with possible and practical ways and means for encouraging and developing more structural brick contracting.

It might prove advantageous, for example, to follow somewhat after plans being worked upon by the paving brick people in the building brick industry and create a sort of central estimating and contracting agency which would undertake structural brick contracting where assistance of this kind might be necessary rather than to push brick contracting in competition with independent building contractors. The idea would be to supplement the development of individual contractors rather than to compete or interfere. There seems to be a chance for some splendid mission work here if the thought can be put into definite form and enough interest aroused and properly organized.

Then entirely aside from this there is plainly a need to encourage the development of building brick contractors. We have lots of architects, we have a fair share of attention given to the subject of vocational training and equipping youngsters for brick laying, but we are seemingly very shy on brick contractors. Often the building contractor in a community is primarily a carpenter or a lumberman, with a natural preference for and a better understanding of lumber than of brick.

In this, too, we find that somehow or other lumber manufacturers and dealers have developed more contracting along with their business, that is more structural contracting than have the brick people. In one of the important cities of the country it is known that two of the leading contractors were primarily and still are lumber dealers and planing mill operators. They erect brick buildings and even stone buildings, but they developed the contracting business primarily to push their own business, and it may be that this will be found the best way in many localities for the brick manufacturer to push brick building operations.

Whatever may come out of it eventually, there is plainly a subject here with possibilities which justify thoughtful and active attention, both on the part of individual manufacturers and also as a subject at convention meetings.

Written for The Clay-Worker.

CINCINNATI BRICK AND BUILDING NEWS.

The NEW YEAR has not brought with it as yet any material betterment to the building situation in this section. This is not, however, a disappointment to the manufacturers and dealers, as there has been no great reason for the resumption of building for a time. The winter is here and the early part of the month has been rather cold. This is to be expected and the danger of continued ugly weather is not unlikely. So this is only the natural outcome of the season.

The trade aspect is still in doubt. Higher prices for both materials and labor than the building public desires to cope with are factors that are not going to help matters now. There is not much inclination to building plants, factories or other kind of construction when the question of both materials and labor are out of proportion. It is true that all or most all else is high. Still the man or company who builds now in most cases will be inclined to wait until there has been some indication of lower prices.

It is not thought likely that these will see much of a reduction in the very near future. This, however, has a tendency to make the prospective builders wait. They want to be sure that there will be no material reduction before beginning work that might become a loss in this way should the prices come down. Therefore, the situation cannot offer anything tangible, and with the winter well under way it is not calculated that there will be a great improvement for a time at least. This is the situation now and there is everything to indicate that it is well founded.

The only possible trouble that might be looked for here, that of labor disagreements, has been about removed. The working agreement that was in vogue here before the war upset the building world, will in all probability be restored. This, at least, has been the conclusion reached after a number of discussions between the building trades and the members of the Building Construction Employers' Association. The plans in vogue prior to the war made it compulsory for the settlement of all disputes between the trades and members of the association to be settled by arbitration without any cessation of work.

This city has in the past been noted for its lack of labor troubles, and with the coming of the new year the same good feeling will be much in evidence. The fact that this is in existence here will be a good omen for the building outlook when the building situation becomes more active in the spring.

There has been, however, a request by the Hodcarriers' Building and Common Labor District Council for an advance in wages effective next May. This covers the common labor branch, which is being paid forty cents per hour. The request is made for forty-five cents per hour, and eight-hour day and one year's contract.

Judging from the view of one brick contractor here, the outlook for building is very promising for the year. In fact, the entire country has every indication of a good year. However, this will hardly come before next spring.

The next meeting of the Master Masons' Association of the United States and Canada will be held here in the fall. It will bring about four hundred delegates to this city.

The Cincinnati Board of Education has made an application to the Capital Issues Committee at Washington, D. C., for permission to issue $500,000 worth of school improvement bonds. These will be used in building two schools here. The plans and specifications have been prepared for these buildings, and it is believed that work on the same will be started before long.

The Builders' Exchange resumed its old quarters at 614 Race street on January 1. The indications for building at least having a more favorable outlook makes the future of the organization promising and there will be a resumption of something akin to the old time interest among the members for a more profitable period.

The Purcell-Grand Co., face brick dealers, with offices and display rooms on the 12th floor of the Mercantile Library building, has been dissolved, Walter Purcell selling out his interests to Edmund Grand. Mr. Grand intends to reorganize the company and the new name will be determined on later. Mr. Purcell has secured a location at 1008 Mercantile Library building and will in the near future incorporate a new company to handle face brick, etc. Later he will secure a ground floor location and introduce a new idea in the display and sale of face brick. The plans of neither company have as yet been perfected, but these will be worked out in the very near future.

CINCY.

A REMARKABLE RECORD OF DURABILITY AND EFFICIENCY.

As has been chronicled in these columns, N. Clark & Sons of San Francisco, Cal., were the victims of a bad conflagration some time since, which destroyed a large part of their sewer pipe plant, which had a remarkable record, having been in continuous operation, almost, for thirty years. They have purchased a new equipment of presses, etc., from Taplin, Rice & Clerkin Co., of Akron, Ohio, with a full set of dies for standard shapes and sizes, and feel that they are now entering on another quarter century or more of efficient operation. Pioneer sewer pipe presses are unequalled for durability. As stated in their ad on the back outside cover of this issue, 'it takes the best to make the best." Taplin, Rice & Clerkin Co. will be very glad to send catalogue giving full particulars of their noted Pioneer presses to any Clay-Worker reader desiring same. It was this same brand of machinery which was installed in Clark & Sons plant nearly a third of a century ago. Little wonder they purchased another outfit of the same brand.

YOUNG CLAYWORKER WEDS.

M. Creveling Gregory, of Corning, N. Y., son of Mr. and Mrs. Morris E. Gregory, was married January 11 to Miss Doris Elizabeth Neer, at the home of the bride in Mechanicsburg, Ohio. Mr. Gregory, who has been with the Bureau of Standards, Pittsburgh, Pa., for a year or more, has returned to Corning, where he will be associated with his father in the Brick, Tile & Pottery Co.

Meet us at the N. B. M. A. Convention, Pittsburgh, Pa., February 3 to 8.

PAVING BRICKMAKERS TAKE NOTICE.

F. A. Churchill, Conneaut, O.

THE war has taught the American people, among other things, two great lessons: First, the value of preparedness; second, the importance of concentration of energies.

Business should take these lessons to heart. The readjustment period is at hand. The transition from war to peace can hardly be made without some jolting. Even with the utmost care in easing the change there is sure to be more rapid movement in some industries than in others, and more or less oscillation before normal equilibrium can be established.

Obviously, the industry that is best prepared to meet emergent situations will hold a position of commanding advantage.

Many important industries are fully cognizant that opportunity waits 'round the corner, and they are planning accordingly. Business foresight was never before more essential, because a new order of things is about to be ushered in, and old ways will be ineffectual.

Among those who are looking expectantly and confidently into the immediate future are the paving brick interests. This industry was hard hit by the war, brought virtually to a standstill. The future, however, is big with promise, but the promise is conditional.

As thrifty farmers utilize the winter season by putting their stock and equipment in readiness for the spring season of activity, so forehanded paving brickmakers are preparing for the new year. The situation requires unusual preliminary work. The war has curtailed production, disrupted organizations, and in many instances it has shut down plants for indefinite periods.

Enterprising brick manufacturers are putting their plants in shape, and are taking steps to assure adequate supplies of fuel and labor, with a view to resumption of production at the earliest practicable moment.

These measures of preparedness are approved by sound business judgment. The American people have learned the enormous cost of deferring preparations until the emergent situation arrives, and American business men have profited by the lesson.

Now that practically all restrictive regulations have been revoked, and improvement of streets and roads may go forward without hindrance from the government, a vast amount of road building is certain to be undertaken in the spring in northern latitudes and earlier in the southern states.

The closing of plants engaged on war materials, the demobilizing of men in training at army camps and cantonments, and naval training stations, and the early return of two million men from abroad will bring marked relief to the labor situation.

Before this nation declared war, the several states had planned the immediate expenditure of more than $300,000,000 in the aggregate for road improvement. The past eighteen months have emphasized the importance of serviceable highways, and there is every reason to expect that the original total appropriated by the states will be exceeded. In addition, the state of Pennsylvania has voted $50,000,000 and the state of Illinois has voted $60,000,000 for highway improvements. A conservative estimate of the amount of money that will be available for highway improvement in 1919 is $400,000,000.

This estimate does not take into account the enormous aggregate of money that will be spent by municipalities in paving streets and alleys.

The outlook for the paving brick industry is roseate. A great opportunity will certainly be presented, and if the paving brick manufacturers take advantage of the opportunity they will be able to put brick in its rightful place at the head of the list of hard-surface paving materials.

That desirable achievement cannot be accomplished by disorganized effort. No great industry can attain conspicuous success by means of disintegrated units working independently. There must be unity of action and co-ordination of forces along co-operative lines. In other words, great enterprises require concentration of energies and centralization of directing power to carry them out successfully, the individual units in interest deriving their benefits from the success of the industry as a whole.

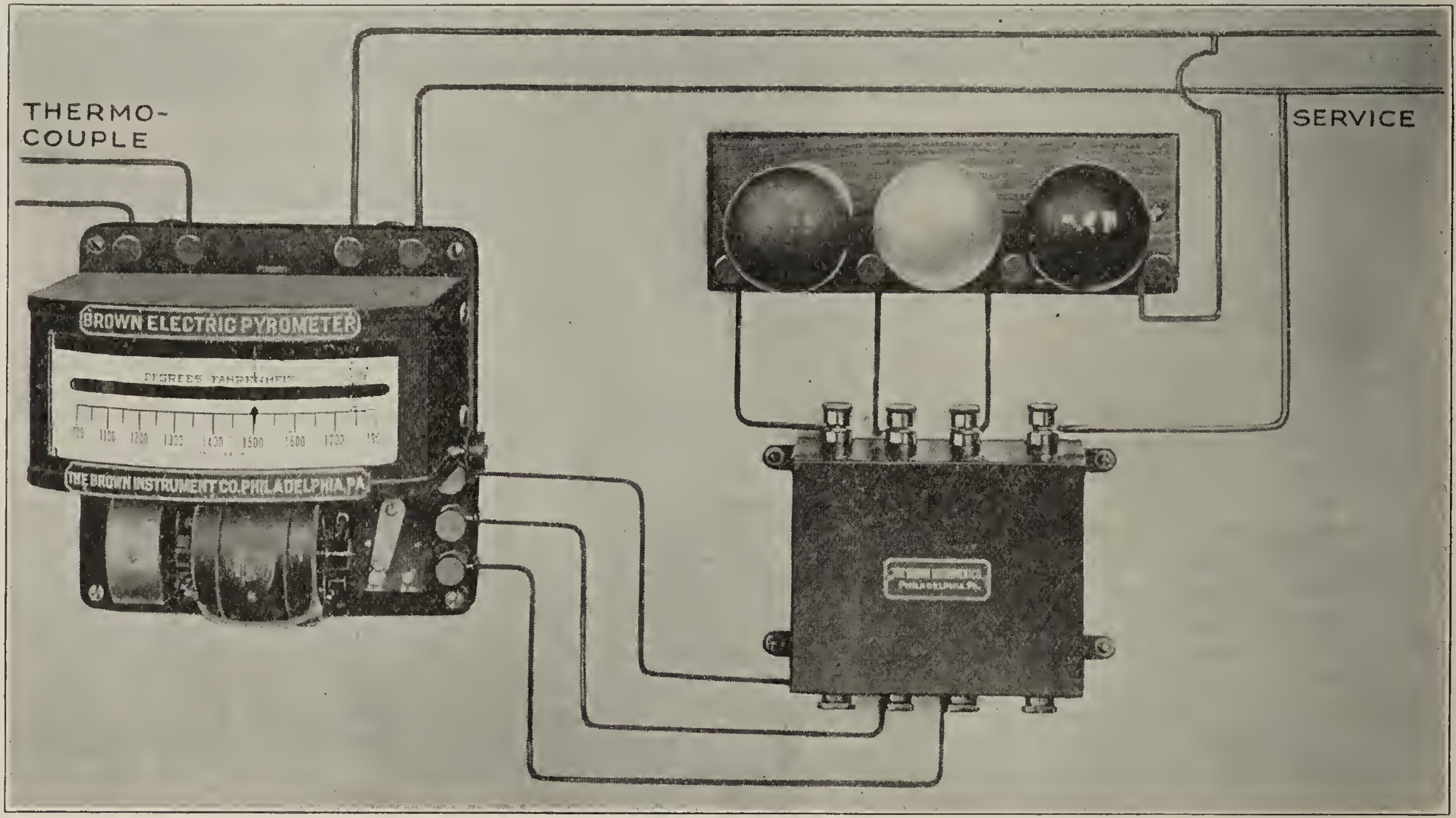
Thus, great expansion of the paving brick industry, as a result of capitalizing increased demands for the product, redounds to the benefit of individual brick manufacturers although the development of the business on broad lines necessarily implies efficient organized effort, national in scope.

Sharp competition will mark the revival of road improvement activities, as a matter of course. The material interest which manifests the greatest amount of well-directed enterprise will take the advantageous position. Tactical advantages will be possessed by the interest which is best prepared to meet market demands promptly and has the most completely organized and best equipped promotion and selling force.

In the commercial contest which will soon open, the most effective strategy will be thorough preparedness, with plans of campaign drawn on broad general lines and worked out in practical detail so that every branch of the service will act in conformity with the general plan.

The war has wrought a radical change in business affairs. Haphazard methods have no place under the new order. A big industry must do things in a big way and in the new way. The old-time policy of detached forces operating independently must be scrapped. Co-operation is indispensable, and in order to be effective it must be so organized as to be compulsory in the sense that the units obligate themselves to loyal support of the general plan of action.

This does not imply an unlawful combination or a surrender of individual liberty of action in marketing products, but it does mean that manufacturers should adopt modern methods and work together for the common welfare through an organization that has vitality and that can command legitimate resources for educating the public in the merits of brick pavements.



The Latest Automatic Signaling Pyrometer for the Con trol of Proper Temperatures in Kilns and Furnaces.

Organization and co-operation as the terms were understood in the pre-war period have a much broader meaning now, and there are good reasons for believing that the paving brick interests will be abreast of the progress of events, ready to make the best possible use of opportunities, the advent of which is already being heralded by unmistakable signs of the formulation of a vast road-building program throughout the country.

It is the men with vision and broad-gauge methods who will keep pace with the new order of things and be rewarded for their faith and works, and these are they who see the need of concentrating the energies of allied industrial interests so that co-operative instrumentalities shall be both powerful in unity and flexible in operation.

NEW BROWN SIGNALING PYROMETER.

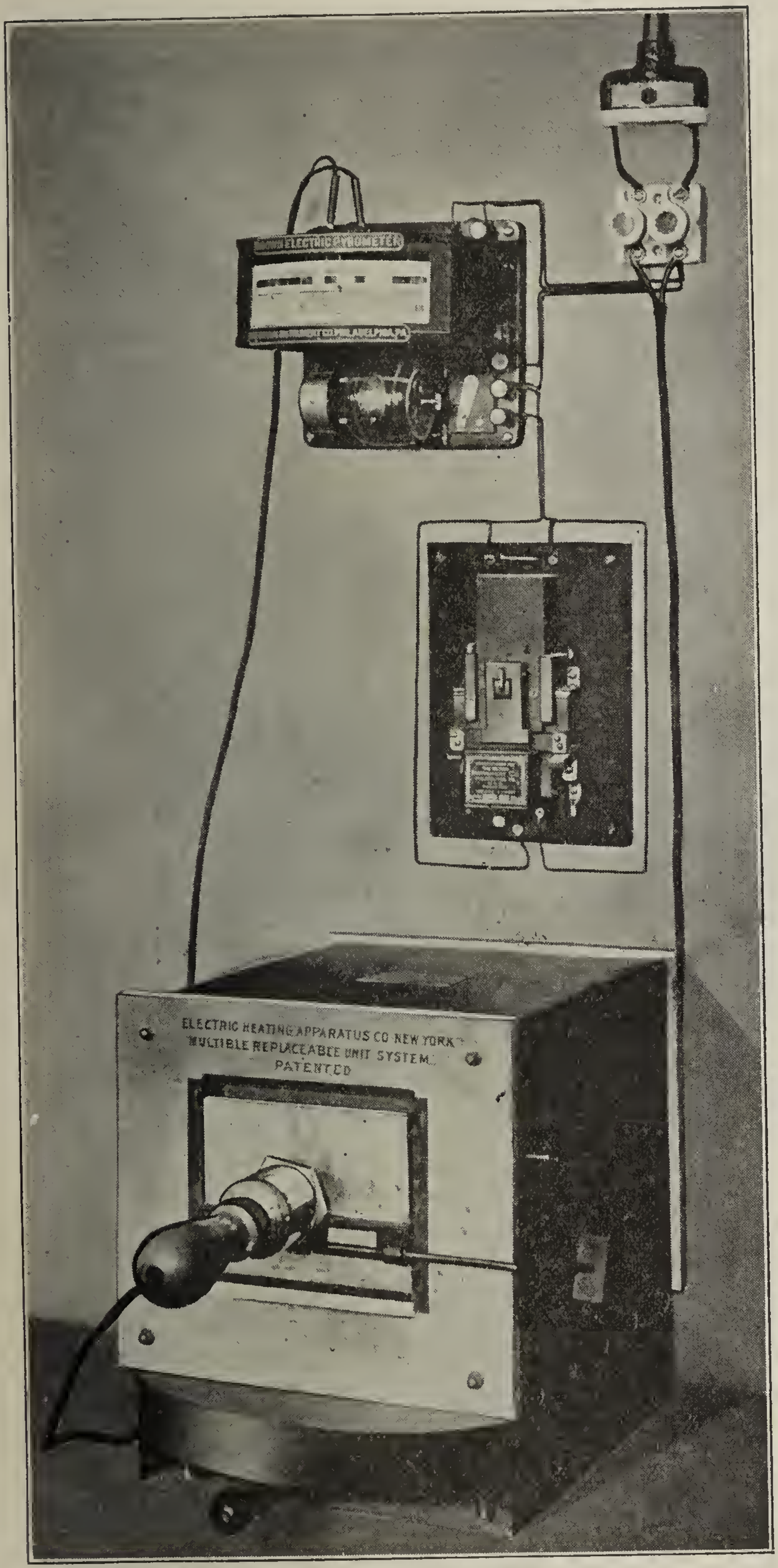
A PYROMETER equipment has become an absolute necessity wherever steel must be accurately hardened, annealed or tempered, and in many other processes where the product must be heated to a definite temperature to secure certain desired qualities, whether in heat treating steel, in annealing glassware, in burning brick and ceramic products, in chemical processes, in gas manufacture and in a thousand and one manufacturing processes.

The ordinary Pyrometer either indicates on a temperature scale or records the temperature on a graduated chart. These instruments are quite satisfactory where the employes are of a grade which can readily read the temperature scale of an instrument and understand the movement of the pointer across the temperature scale.

During the last few years, however, most manufacturing plants have had to operate with an inferior grade of labor, often so inferior that they are unable to read or write, and the temperature scale of an instrument is meaningless to them.

It has become necessary, therefore, to use some other means to indicate to the furnace operator whether its temperature is correct or too high or too low, and in the past few years in the largest plants it has been the policy to signal the temperature by lights from one central station. Three lights are grouped at each furnace, green to indicate the temperature is O. K. (usually within a limit of + or = 10°) and red to indicate that the temperature is too high. The white light burns at the furnace while the temperature is correct; as soon as it rises or falls more than 10° to either side of the desired temperature, the operator at the central station flashes the green or red light and extinguishes the white. Any ignorant employe can be instructed to keep the white light burning and what to do when the red or green light appears.

This system requires the maintenance of a central operator to flash the signals and usually an elaborate switchboard and wiring system from the furnaces to one central point.


BROWN ELECTRIC PYROMETER
ELECTRIC HEATING APPARATUS CO NEW YORK
MULTIBLE REPLACEABLE UNIT SYSTEM
PATENTED

The Brown Automatic Signaling Pyrometer.

In order to save the expense of this operator's time and the elaborate installation, and also to take care of the plants which have a comparatively small number of furnaces, The Brown Instrument Company has developed an instrument to automatically operate the signal lights from a Pyrometer.

The instrument in construction is very similar to the ordinary Indicating Pyrometer.

A contact table adjustable throughout the whole scale range carries three contacts corresponding to the three lights, the central contact operating the white light, usually covering a space of 20° on the scale, amounting to 10°+or— of the desired temperature. The pointer on the Pyrometer is automatically depressed once a minute on the tungsten contacts.

An automatic 3-position relay is operated by the closing of the contacts in the instrument. Let us assume that the furnace is started up and the low contact is closed, corresponding to the green light, and the relay completes the circuit through the green light. The contact in the instrument is only closed a few seconds to operate the relay, but the green light continues to burn until the temperature rises to the desired point, when the relay shifts, causing the white light to burn and extinguishing the green light. The proper light continues to burn at all times, although the contact in the instrument only closes for a few seconds once a minute.

It is frequently desirable to incorporate a hand operated switch with the instrument so that the temperature of the thermo-couple in a furnace may be automatically signaled and the temperature of other thermo-couples may be read on the scale by some qualified official. This is easily handled.

We will assume that the temperature of No. 1 thermo-couple is to be signaled and the switch ordinarily remains on No. 1 point. It can be thrown by hand to Nos. 2, 3, or 4 points for instance, and when thrown the circuit, through the lights, is automatically cut off from the instrument, but the relay continues to maintain the light burning on No. 1 thermo-couple until the other temperatures have been read and the switch returns by a spring to No. 1 position. Then if any change has taken place in the temperature while the other points were being read, the relay will automatically operate again.

By introducing an automatic motor or clock driven switch in connection with a Pyrometer, the temperature of practically any number of thermo-couples can be automatically signalled by one instrument. We have constructed a standard instrument operating lights at 12 furnaces in this manner. This eliminates the expense of maintaining the central operator and the elaborate installation of the switchboard and hand operated signal lights.

Another recent improvement and development is an automatic contact advancing mechanism driven by clock work, which causes the contacts to advance at a pre-determined speed across the scale.

In certain processes, for example kiln firing, the temperature must be advanced slowly at a pre-determined rate. The signal lights can be operated in this manner to indicate by the burning of the white light when the temperature is advancing at the desired rate, or to show by the red or green light when this condition is not being maintained.

This same type of instrument is applied for the automatic control of temperature either with electric switches for electric furnaces or with valves to control steam, gas or oil. The same instrument which automatically signals the temperature by lights can also automatically control the temperature at the same time if desired with suitable switches or valves which are supplied by The Brown Instrument Co. The instrument to automatically signal the temperature of 12 furnaces can likewise automatically control the temperature, as can the instrument in which the temperature control point is constantly advancing across the scale. In this way the temperature of a constantly advancement process can be automatically controlled.

A standard instrument of this kind is supplied with clock mechanism to advance the contact point across the scale to the maximum temperature desired within any time limit specified and a gear shifting device is furnished so that this speed can be increased 10 to 20 per cent. or decreased 10 to 20 per cent. if it is found after operation for some time that the rate of heating can be changed to advantage.

These instruments represent a radical step in the perfection of Pyrometers for use with unskilled labor, for whether the temperature be signaled by lights or whether it be automatically controlled, the maintaining of the correct temperature becomes entirely automatic.

CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Changing to Waste Heat System at Martinsville.

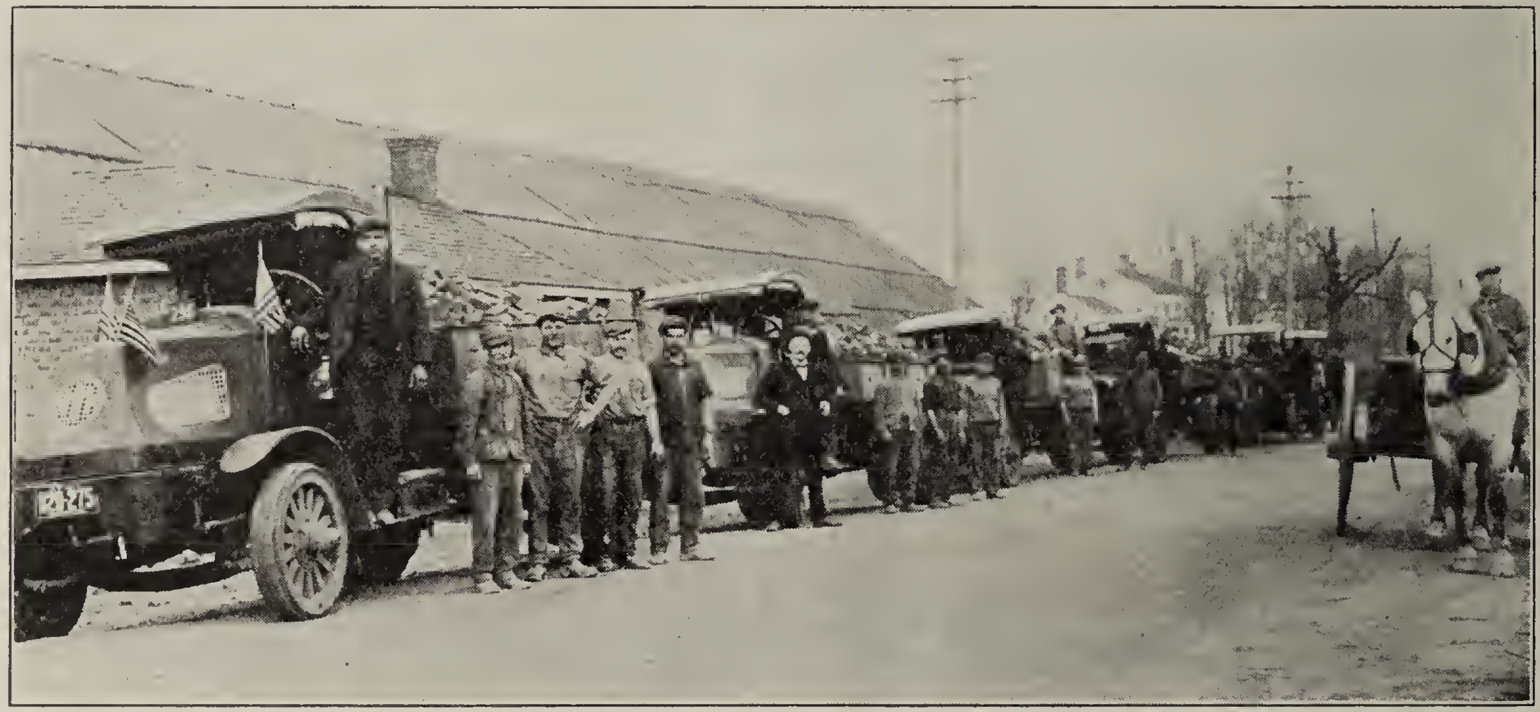
Dear Mr. Randall:

I expect to be with you at the convention in Pittsburg, if possible. Our Secretary, P. A. Nutter, left recently for the University of Michigan, to complete a business course, so I am left alone here for a while.

We are quite busy putting in a waste heat dryer, somewhat on the plan of the one that I overhauled at Binghamton, N. Y., when Mr. Charles Crook was manager of that plant. We are also going to change from steam power to motor or electric power. We have nearly all of the motor equipment, but have to buy a fan and man hole castings for the kilns. We are going to build a nine foot fifty foot stack, with a 9 inch partition lining, with a 4 inch air space between lining and outer wall, to which four kilns will be connected. Each kiln will have its own independent draft, so when two or more kilns are on fire one will not check the draft of the others, which is always the case where there are no partitions.

Hoping to meet with the brick men at Pittsburgh, where I am well acquainted, I am, Yours truly,

L. M. JOHNSON, Manager,
Martinsville, Ind. Adams Clay Products Co.



A Train of Auto Trucks Loaded with Brick for Camp Mills, L. I.

Opportunity for a Good Brick Man in Wyoming.

Editor The Clay-Worker:

I want to locate a good man to take hold of the establishment of a good brickmaking plant near Cody, Wyoming. We have suitable material, electric power, coal and gas in abundance; no digging, everything gravity from clay bank to mill. We can sell all the brick we can make. We need a good plant in this territory, since the freight rates from Kansas, our closest market for vitrified brick, is prohibitive. This is a good thing for the right man, we can furnish the best of reference as to finances, etc. The Government will use all the brick we can make. Very respectfully,

Cody, Wyo. A. M. BERRINGER.

Good Opening In Alabama for Brick Plant.

Editor The Clay-Worker:

There seems to be an especially good opening in this section for a good brickmaking plant. There is a Government plant within three miles, but brick could not be had to any extent. The price which prevails here is $20.00 per thousand, retail. We would like to get in touch with responsible parties who would be interested in the proposition.

P. O. Box 685, Sheffield, Ala. H. W. LACKEY.

Delivering Brick to Government Job by Auto Truck.

Dear Friend Randall:

I was mighty sorry not to see you when you were in New York last week. Wanted you to come out and see some of the work we have been doing. Here it is the middle of December and I am still making brick. Nearly all of my brick this year have gone into Government work. I have shipped to Whitestone, Long Island; Port Jefferson; Camp Upton; Aviation Field No. 1 and No. 2, Mineola; Camp Mills, and Garden City, L. I., I sent to Camp Mills alone last month 500,000 brick. These were delivered by auto truck, and thinking they would be of interest to The Clay-Worker readers, had pictures taken of the trucks lined up and loaded with brick for Camp Mills, which I am sending you.

I tell you we have been kept on the jump. I wanted you to see, in particular, the work they are doing at Camp Mills. I was out there again today and there is still lots of work to be done. In fact, it just looks like there is no end to it.

With best regards, and hoping to see you all at the convention at Pittsburg in February, I am. Yours truly,

Glen Head, L. I. JOTHAM POST.

Good Outlook for Home Building.

Editor The Clay-Worker:

Enclosed find check covering subscription to The Clay-Worker for 1919. The business outlook for the coming year in our section is fine. We are getting a good many inquiries, but the prices of material is so high that it may have a tendency to head off some people. However, a good many residences are going to be built, and the farmers are quite busy improving their homes.

Moultrie, Ga. W. W. NACE.

Proper Mixtures for Fire Brick.

Editor The Clay Worker:

Can you tell me what is the proper per cent. of grog or calcined clay required for the average stiff mud brick.

A TEXAS READER.

The amount of grog depends on the character of the material. As a rule, plastic bond clays are not as refractory as the non-plastic clays. Around the Pittsburgh district 25 per cent. plastic to 75 per cent. flint clay is used for the high grade brick. The more flint clay used, the better the brick are considered. It is perfectly possible to make a good fire brick without any grog, provided the shrinkage of the clay used is not too great and is refractory enough. If the grog is made of the clay and it is necessary to calcine it specially, it should be used in small amounts to keep the cost down, but sufficient should be used to reduce the shrinkage and open the body to the proper point.

Hollow Ware Machinery Manufacturers, Attention!

Editor The Clay-Worker:

Please enter Merkleys Limited for a years' subscription to The Clay-Worker. You are sending paper now to Casselman, Ont., and a little later we will want it changed to Ottawa.

The firm of Merkleys Limited has recently been incorporated, and has taken over the Peerless Brick & Tile Company of Ottawa, Ont., and will make a number of extensions to the plant to include all lines of hollow ware. Will be glad to communicate with firms manufacturing machinery and building kilns, etc., for this line of work. Our head office is located at Room 9 Castle Building, Ottawa, Ont., Canada.

Yours very truly, MERKLEYS LIMITED.

Pittsburgh Man Enjoys New Jersey Meeting.

My Dear Mr. Randall:

I am just back home from the convention of the New Jersey Clay Workers' Association which was held at New Brunswick, N. J., December 17th. The meeting was well attended, and particularly interesting to note the enthusiasm of the members and the high esteem they have for the Ceramic Department at Rutgers College and Professor George H. Brown the Director of that Department and secretary of the New Jersey Association. I might say something about the instructive program, but as I was one of the performers, modesty forbids. Yours very truly,

Pittsburgh, Pa. F. H. RIDDLE.

J. L. BUCKLEY TO BOOST HURRICANE DRYER.

The Philadelphia Drying Machinery Company, Inc., of Philadelphia, Pa., manufacturers of the "Hurricane" dryer, have recently added to their already extensive organization a clay and porcelain department. Mr. J. L. Buckley, formerly of Des Moines, Iowa, an experienced and practical clayworker, will have charge of this new department, devoting his entire time to same. His practical experience, combined with the advantages of the "Hurricane," will be a potent factor in helping clayworkers solve their drying problems. Mr. Buckley solicits correspondence from clayworkers who are interested in an economical drying system. See advertisement on back outside cover.

Kiln Shed at the Brick Plant of Jotham Post, Glen Head, L. I.

ROAD DRAINAGE.

The drain tile people should find keen interest in the plans for extensive road building, for the right kind of road building calls for proper drainage and helps make a demand for drain tile. The U. S. Department of Agriculture has issued Bulletin No. 724, on "Drainage Methods and Foundations for County Roads." This bulletin points out that the first essential feature of an improved road is adequate drainage. The purpose of this bulletin is to supply information concerning the proper methods of draining road beds, and it is a thing that ought to help along the drain tile business some as well as help point the way to better and more permanent roads.

Printer's ink constitutes the least expensive and most effective form of advertising even though the prices of both paper and ink have advanced sharply.

OFFICIAL ANNOUNCEMENT.

THIRTY-THIRD ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION AND ALLIED ORGANIZATIONS TO BE HELD AT THE WILLIAM PENN HOTEL, PITTSBURGH, FEBRUARY 2 TO 8, 1919.

THE THIRTY-THIRD ANNUAL CONVENTION of the National Brick Manufacturers' Association will be held at Pittsburgh, Pa., February 3 to 8, 1919. The "Nation's Armory," as Pittsburgh is now called, is the hub of the Nation's industrial life. It is one of the great clayworking centers of the Nation, being within a night's ride of a majority of our members, hence it is the logical point for our National Convention at this particular time when the brick, tile and pottery manufacturers are facing new problems, incident to the reconstruction period, problems that challenge the best thought and judgment of every manufacturer.

The war is over, and happily. The only restrictions now operating against any branch of our industry is that of the inexorable law of demand and supply. This was practically true of the war period, but there were unusual conditions imposed at that time which led many to lose sight of the real controlling facts, for the time being. That an era of unusual activity lies just ahead is generally conceded. To make the best of these opportunities our members should act concertedly. Remembering that there is wisdom in a multitude of counsel, successful manufacturers will avail themselves of the opportunity afforded by our national convention for mutual confidence and the interchange of information and experience of a practical sort, such as can be had only by personal touch with fellow craftsmen.

Hotel Headquarters.

The William Penn Hotel will be headquarters during the convention. It is both commodious and modern and will afford ample accommodations for our entire membership. However, it is wise to request reservations in advance, for Pittsburgh is a very busy city these days. When requesting reservations, members should state date of intended arrival, whether single or double room is desired, and the number in the party. Where two occupy a room, the rate will be $2.50 each, on the European plan.

Convention Hall and Exhibition Room.

The sessions of the National Association, which as heretofore will be open to the public, will be held in the convention hall on the seventeenth floor of the William Penn Hotel. Those desiring tables for the display of literature are requested to notify the secretary. Facilities will be afforded for the display of specimen brick or other ware. The leading clay machinery manufacturers and supply dealers will have headquarters on the sixteenth floor. Those desiring rooms on that floor are requested to advise the manager of the hotel or the secretary at Indianapolis, whichever is preferred.

Meetings of Affiliated Associations.

The American Ceramic Society will have headquarters at the Fort Pitt Hotel, and will hold its first session there Monday forenoon, in the English room, which is on the ground floor. A program of sessions and events is in course of preparation, and will be mailed to members as usual. Others desiring same are requested to apply to Charles F. Binns, secretary, Alfred, N. Y.

The National Paving Brick Manufacturers' Association will hold its sessions in the William Penn Hotel. For headquarters of the executive officers, see N. B. M. A. Official Bulletin in hotel lobby, or write to Vice-President Will P. Blair, Engineers Building, Cleveland, Ohio.

The N. B. M. A. Official Bulletin

The headquarters of the various organizations and the office rooms of exhibitors will be given in the illuminated bulletin in the main lobby of the William Penn Hotel. This bul-

Memorial Hall and Adjacent Buildings in Pittsburgh's Beautiful Suburban Section.

letin is the gift to the Association of the Hoosier Entertainment Committee, and it is anticipated that it will prove a great convenience to the members in enabling them to locate the various meeting places and the rendezvous of those exhibiting supplies and models of apparatus of various sorts.

The National Clay Machinery Manufacturers Association will hold their regular sessions Tuesday and Wednesday in one of the parlors of the William Penn Hotel. For exact hours and location, see N. B. M. A. bulletin in the lobby, or address Thomas A. Hibbins, secretary, Wellsville, Ohio.

The Smokerette.

The informal reception and supper, yclept the smokerette, will be held Tuesday evening in the William Penn Hotel, unless otherwise announced on the official bulletin. Delegates and those accompanying them, including the ladies, are supposed to participate. The Association badge is the only requisite of admission. There will be musical stunts and other suitable entertainment which has made this function a pleasing feature of recent conventions.

The N. B. M. A. Banquet.

The annual banquet will be held in the ball room of the William Penn Hotel on the seventeenth floor, Thursday evening at 7 o'clock. Following the rule which has prevailed for several years, it will be a subscription dinner under the auspices of the executive committee of the National Association, assisted by the local entertainment committee. A number of eloquent speakers representing the nation, state and city will respond to appropriate toasts, and special musical stunts will add to the joy of the evening. The ladies will grace the occasion. Members are expected to bring their wives, daughters, or sweethearts, as the case may be. Full evening dress will be in order, though by no means necessary.

Souvenir Badge and Number Button.

An appropriate souvenir badge and number button will be presented to each member and a guest badge to those accompanying the delegates, same being presented with the compliments of the local committee. Badges and other souvenirs and the program of local events will be distributed by the secretary of the N. B. M. A., at headquarters in the William Penn Hotel, where members and visitors are requested to call and register on arrival.

Those interested directly or indirectly in clay work of any character or the use of clay products of any sort are invited to join the association and participate in the proceedings of the convention. Members and their families or friends who may accompany them will be expected to participate in all the entertainments and proceedings.

Those desiring further information as to requisites of membership in the N. B. M. A. formal program, etc., are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
George H. Clippert, President.
Theodore A. Randall, Secretary.

Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address an opportunity will be afforded for a full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard unless previously submitted to and approved by the executive committee.

Papers and addresses delivered during the convention become the property of the association, and, in accordance with the rules of the association, may not properly be given out for publication except by or through the secretary.

The proceedings of the convention will be copyrighted to prevent piracy, but the greatest publicity will be given all the convention papers and discussions at the proper time, after the report is complete, not before, when copies of any and all papers and discussions may be had free of charge on application to the secretary.

The N. B. M. A. Program.

First Session, Wednesday, 2:30 p. m., February 5.

Opening Prayer.

Address of Welcome on Behalf of the City—Hon. E. V. Babcock, Mayor of Pittsburgh.

On Behalf of the Chamber of Commerce—Frank J. Lanahan, Chairman Convention Committee.

Response to Address of Welcome—Douglas F. Stevens, Cayuga, Ind.

President's Annual Address—George H. Clippert, Detroit, Mich.

Historic Pittsburgh Viewed from the Water Front Where the Allegheny and Monongahela Rivers Merge into the Great Ohio.

Treasurer's Report—John W. Sibley, Birmingham, Ala.

Secretary's Report—Theo. A. Randall, Indianapolis, Ind.

Election of Officers and Members of Standing Committees.

Installation of Officers.

Report of Committee on Technical Investigation—Albert V. Bleininger, Secretary, Pittsburgh, Pa.

Reports of other committees.

Build Now—Lieut. J. Edwin Kopf, Architect, Indianapolis, Ind. Mr. Kopf has recently returned from England, where for more than a year he has been connected with the 7th Construction Bricklaying Company, U. S. A., directing construction work for military purposes.

Discussion led by B. Mifflin Hood, Atlanta, Ga.

Papers for Subsequent Sessions.

Our Labor Problems—Nicholas Van der Pyl, Oberlin, Ohio, representing the U. S. Department of Labor, Washington, D. C.

Discussion, led by Spencer Duty, Cleveland, Ohio.

Brick Without Straw—Ira A. Woolson, C. E., New York, N. Y., representing the National Board of Fire Underwriters.

General Discussion, led by H. H. Stafford, Augusta, Ga.

The Evolution of Shipping—John F. Lent, Pittsburgh, Pa.

Discussion, led by J. G. Barber, Canton, Ohio.

Tonnage Versus the Per Thousand Basis in Selling Clay Products—Thomas E. Wilson, Pittsburgh, Pa.

Discussion, led by S. B. Dobbs, Philadelphia, Pa.

Plant Management (Illustrated)—R. C. Burton, Zanesville, Ohio.

Discussion, led by H. B. Simpson, Pittsburgh, Pa.

Fuel Economy—A. F. Greaves-Walker, Baltimore, Md.

Discussion, led by Fritz Salmen, Slidell, La.

The Face Brick Business in 1919—Mr. Kemper, New Galilee, Pa.

Discussion, led by William E. Sankey, Pittsburgh, Pa.

Some Thoughts on Industrial Reconstruction with Reference to Clay Industries—Albert V. Bleininger, Pittsburgh, Pa.

Discussion, led by Marion W. Blair, Thornton, W. Va.

Home Builders—M. R. Pearse, Building Commissioner, Toronto, Ont., Canada.

Discussion, led by W. K. Hammond, New York, N. Y.

Short Cuts in the Operative End of the Business—M. E. Gregory, Corning, N. Y.

Discussion, led by E. C. Hillyer, Raleigh, N. C.

Over the Top in the Brick Business—General Discussion, led by Charles H. Bryan, Detroit, Mich.

Industrial Highways (Illustrated)—F. W. Wood, Danville, Ill.

Discussion, led by Will P. Blair, Cleveland, Ohio.

Heat Balance of a Kiln Fired with Forced Draft—Prof. Ralph K. Hursh, Department of Ceramics, Illinois State University, Urbana, Ill.

Discussion, led by Warren Ittner, St. Louis, Mo.

Questions for General Discussion.

What is the best length for a progressive Tunnel Dryer?

What is the Most Economical Method of Digging and Handling Clay from Bank to Machine?

Can the Auger Machine be Adapted to the Hudson River Clays?

Which is the Better Method of Drying Brick—Steam or Direct Radiation?

BACK FROM ARMY SERVICE.

Major Clark R. Mandigo, engineer, has been honorably discharged from the army after nineteen months' service including service with the A. E. F., and has returned to his former position of consulting engineer for the Western Paving Brick Manufacturers Association, Dwight Building, Kansas City, Mo.

PITTSBURGH A GREAT AMUSEMENT CENTER.

Pittsburgh has 11 theaters and 30 first-class motion picture houses. The theaters include the Nixon, which is situated across the street from the William Penn Hotel, and the Alvin, the Duquesne and the Pitt, which provide the highest class of attractions. The Davis, also across the street from the William Penn Hotel, is one of the finest vaudeville houses in the country. The Grand, under the management of Mr. Harry Davis, is a magnificently appointed motion picture house. In the realm of winter amusements also is provided in Pittsburgh two indoor ice skating rinks.

Visitors in Pittsburgh will find many places of interest within a few minutes ride of their hotel. The block house which marks the site of Ft. Pitt and erected during Pontiac's War in 1764, is a notable landmark. Delegates to this convention will be particularly interested in the fact that it is built of brick and is the oldest building of brick construciton west of the Allegheny Mountains. A view of the city from the top of Mt. Washington presents a panorama in a bird's-eye view of the surrounding country that is never to be forgotten. The Allegheny County Court House on the summit of Grant's Hill is a notable piece of municipal architecture and regarded as Richardson's masterpiece. Grant's Hill in Colonial times was a high knob, rising out in triangle form by the junction of the Allegheny and Monongahela rivers. On its western approach was a steep declivity. In 125 years successive areas have been cut off this "hump." Where there were precipices before are now busy streets with easy grades for pedestrian and vehicle traffic. On the summit of this hill on September 14, 1758, occured one of the bloodiest battles of the French and Indian War, in which a detachment of British forces under Major James Grant was overwhelmed by French and Indians in a sally from Fort Duquesne. This was the last stand made by the French in this region, and in November, 1758, they withdrew from Fort Duquesne after demolishing the ramparts. The British, under General Forbes, took possession and the place was name Pittsburgh.

Parks and boulevards offer opportunities for delightful automobile drives through the residential section of the city.

STANDARD PAVING BRICK SIZES.

The Board of Governors of the National Paving Brick Manufacturers Association will recommend to the annual meeting of that body in Pittsburgh that 3 x 4 x 8½ be the standard size for paving brick.

HIGHWAYS COMMITTEE.

The Highways Industries Association now has a Committee on Organization and Promotion with a director representing each of the affiliated industry, as follows:

Brick—W. P. Blair—three year term.
Motor Cars—W. E. Metzger.
Motor Trucks—W. T. White.
Motor Accessories—W. O. Rutherford.
Road Machinery—S. F. Beatty.
Concrete Mixers—Philip Koehring.
Concrete—A. N. Johnson.
Crushed Rock—A. P. Sandles.
Sand and Gravel—E. R. Sutton.
Slag—H. J. Love.
Asphalt Block—E. J. Morrison.
Granite Block—A. T. Rhodes.
Nat. Vit. Mfgrs. Ass'n.—Jno. L. Rice.

Habitual tardiness in business, whether it be in coming to work in the morning, paying bills, or filling orders, seriously clogs the wheels of efficiency.

CANADIAN CLAYWORKERS TO MEET AT MONTREAL IN MAY.

A Good Delegation of Canadians to Attend the N. B. M. A. Convention at Pittsburgh.

Dear Mr. Randall:

Happy New Year, and every success to the Peace Year Convention at Pittsburgh in February. A goodly number of Canadians will be there. Plants which have been closed since war was declared are being prepared for reopening, and the brick manufacturers are optimistic once more.

We have arranged the date of our Canadian convention so as to allow the attendance of the Canadians at the N. B. M. A. convention, and the attendance of the Americans at ours. Instead of our usual date, the last week in January, we will meet in Montreal May 26, 27 and 28. The Quebec manufacturers are noted for their hospitality and visitors will be assured of this year's convention being the best yet. We shall be glad if you will keep the date of the Canadian convention in mind and arrange to be present with us on that occasion.

Just before Christmas a number of the clay products manufacturers surprised me at the Ontario Club in Toronto by giving me a remembrance. They stated, though it was wholly undeserved on my part, that I was the Canadian Teddy of the clay products industry. I just mention this to show you the high regard Canadians have for you personally. The brick manufacturers will never be able to estimate the value of your services to the industry, and I hope you may be long spared to serve them.

With kindest regards and best wishes for a prosperous New Year, I am,

Yours sincerely,
GORDON C. KEITH, Secretary,
Canadian National Clay Products Ass'n.
Toronto, January 1, 1919.

FEBRUARY SELECTED AS CONVENTION MONTH BY VARIOUS CLAYWORKERS' ORGANIZATIONS.

FEBRUARY will be given over pretty generally to conventions. First comes the meeting at Pittsburgh, Pa., the first week in the month of the National Brick Manufacturers' Association, embracing all branches of the industry, the National Paving Brick Manufacturers' Association which, as its name implies, covers the paving brick branch, the American Ceramic Society, dealing with the scientific or higher branches of ceramics, and the National Clay Machinery Manufacturers Association, which takes in the manufacturers of clayworking machinery and supplies, dryer and kiln men, etc. The program for the week is given in another column.

Then at Chicago, the second week, comes the meeting of the American Face Brick Association at the Edgewater Beach Hotel, and the Face Brick Dealers Association, February 10, 11 and 12, and the first convention of the newly organized Common Brick Manufacturers' Association, which will be held at the LaSalle Hotel, February 12, 13 and 14.

Secretary R. D. T. Hollowell writes that it is anticipated that the Edgewater Beach Hotel will be given over very largely to the brick men during their stay. The main subjects to be dealt with during the convention are the three outstanding policies on which the association has been working for the last three years—Costs, Open Price Policy and Promotion. All divisions of the American Face Brick Association have been invited to hold their February meetings on the morning of February 11.

Secretary C. P. Mertens of the Common Brick Manufacturers' Association, has sent the following program for their meetings:

Wednesday, February 12.

11 A. M.—Registration. Meeting: Call to order, roll call, reading of minutes, admission of members, appointing of committees, report of president, speech on "Our Association," by W. N. Cary.

6:30 P. M.—Joint banquet—Common Brick Manufacturers Association of America, Face Brick Manufacturers Association, Face Brick Dealers Association. Speakers: Harry A. Wheeler, president of the Chamber of Commerce of the U. S. A.; William Schlake, president of the Common Brick Manufacturers' Association of America, a representative of the Face Brick Manufacturers' Association, and a representative of the Face Brick Dealers' Association.

February 13.

Address by H. W. Conway, C. P. A., on Cost Accounting as Applied to Brick Business. General talk by members on this subject.

2:30 P. M.—Address by representative of N. W. Ayer & Co., of Philadelphia, "Possibilities in Advertising." General remarks by members on this subject. Address, "Conducting Our Own Liability and Fire Insurance." General remarks by members on this subject.

February 14.

10 A. M.—Reports of officers, reports of committees, unfinished business, new business, election of officers.

OREGON CLAYWORKERS HOLD CONVENTION.

THE Fifth Annual meeting of the Oregon Clayworkers Association was held in Portland, January 7 and 8. Considering the general conditions a good attendance was present. Mr. W. C. Corbett of Corvallis was elected President, Mr. T. S. Mann of Portland Vice-President and Mr. Samuel Geijsbeek was re-elected secretary and treasurer of the Association for the ensuing year. Mr. Frank C. Moore of the Denny-Renton Clay & Coal Co. was elected a director for two years.

The meeting went on record as favoring membership in the Common Brick Manufacturers Association of America, and the secretary was instructed to get this matter in proper shape. The meeting further will file a protest against the increase of two cents on brick and drain tile freight, especially on the short haul.

The report of members as to business past, present and future, showed that they all anticipated a very brisk demand for clay products this spring, and the general opinion was that business would be good.

A joint meeting was held with the State Drainage Association on the second day, and many new drainage projects are being formed.

The annual dinner was held in the palm room of the Multnomah Hotel and was well attended. The place of the next annual meeting was left with the Board of Directors.

AN AUTOMATIC SOFT MUD BRICK MACHINE.

The Arnold Creager Company, New London, Ohio, in entering upon an advertising campaign is showing their automatic soft mud brick machine, see advertisement on page 75, which they state is a brick machine, bumper, dumper and sander, all combined in one great machine. This company is one of the oldest soft mud brick machinery concerns in the country and their S. S. S. Special has been sold extensively throughout the United States and Canada.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXXI. JANUARY, 1919. No. 1.

CURRENT COMMENT.

Prepare for Pittsburgh.

* * *

It's the week of February 2-8, 1919.

* * *

Never before was there a greater need for every man to be present at the N. B. M. A. annual.

* * *

Don't be a ground hog and hide in a hole,
But be at Pittsburgh to answer the roll.

* * *

Let the Peace Congress settle the peace problems and devote our energies to the many interesting questions of pushing peaceful industry.

* * *

With all their faults we've got the greatest system of railroads in the world, and now it looks like they are to become the greatest political issue of the day.

* * *

Propaganda is a word that has been overworked lately about as much as camouflage, and it looks like the two of them have been mixed up together a bit at times.

* * *

While the statesmen of the world are wrestling with the subject of a league of nations, what about a closer league of the brick men of our country for mutual benefit.

* * *

Surely the farmer is one man who has no right to hesitate about making improvements because of higher prices, for his bushel of wheat will buy more things this year than ever before.

* * *

There is no longer a coal shortage, but there is still a coal question, a question of how to avoid waste and keep down that fuel cost which is such an important item in the clayworking industry.

* * *

This is a day for big men and broad ideas, not for smallness and petty bickering.

* * *

We venture again the prediction that the year will bring much in the way of opportunities for the brick machinery folks to do business abroad.

* * *

In the matter of labor and capital the extremists on both sides must stand aside, or be set aside, that rational reasoning may prevail for the good of all.

* * *

The man who fails to attend association gatherings and mix with his fellow men now, is missing one of the good chances to get started right into the new era.

* * *

Let us not overlook the opportunities for clay products in landscape work for interest in this work is widening and making a big opening for burned clay in several forms.

* * *

It ought to be a great year for organizing building and loan associations among railway employes for there is nothing better they could put that increase of wages into than homes.

* * *

As an inspiration for preparedness it is well to bear in mind that you can't sell brick, and deliver them, unless you have them. Better get some stock ahead before the building season opens.

* * *

The man who stays at home will be able to read all about that Pittsburgh meeting in the published reports, and that will help some, but there is only one way to get the full measure of good from such a gathering, and that is to be one of those present and participating.

* * *

As usual, the machinery men will be on the job at Pittsburgh, ready and anxious to help the clay folks solve some of their manufacturing, burning and handling problems. Failure to see and talk with them will be to miss part of the good to be gotten out of attendance at the meeting.

* * *

There is talk of adopting the metric system of weights and measurements in this country as the standard, which, if it happens, will likely make necessary a general re-adjustment of standard sizes in our products. It is a bridge we need not cross till we come to it, yet it is a possibility that calls for a little advance thinking.

THE PRICE OF BRICK.

The brick manufacturers are, figuratively, between the devil and the deep blue sea in the matter of brick prices. On the one side is higher cost and a great urge for stiff prices if he would come out with a clean profit. On the other side is the threatened curtailment of building operations if the level of prices ranges too high. So there you are, and the question is, what can he do about it? Finding the answer to this is one of the good reasons why every clayworker should attend the annual N. B. M. A. meeting.

LINCOLN HIGHWAY PROGRESS.

In the good-roads news of the month there is included plans which it is said will insure the construction during the year of 450 miles of permanent Lincoln Highway. Illinois has approved a bond issue of $60,000,000 to construct a state-wide system of 4,800 miles of highway, which will include 120 of the Lincoln Way; Pennsylvania has voted a constitutional amendment which will open the way for $50,000,000 in that state for road building, and in other states along the route there is manifested an interest that points not only to Lincoln Highway progress, but to road building generally during the year at a rate which means lots of employment and lots of better roads in the near future.

HOME BUILDING ONE OF WAR'S RETURNS.

The most impressive thought brought out by the expressions of these soldiers who have returned from the war zone is that as one of the returns from the war we have a newborn love in the hearts of our young men for the good old U. S. A. Not only did they all of one accord get homesick when the armistice was signed signifying that their job was done, but those who have come home have brought with them a new realization of the blessings of being a citizen of the United States. Many things were seen and admired, but no country found abroad had the satisfying charm of the homeland. This means not only more pride in their home country, but it also means that our soldier boys will take a keener interest in the matter of helping to make the country better and bigger, will take more pride in home building and home surroundings, and thus we will get from the war returns of a value incalculable.

BACK TO THE FARMS.

There is a great hue and cry now to turn the soldiers back to the farms, and there is no question or doubt about the need for more of our young men to return to and stay upon the farm. But it is one thing to recognize the necessity and advisability of this and it is something else to devolve ways and means for bringing it about. Government aid in financing will help some, and there are other factors, but in the final analysis it will be found that it is good roads which will pave the way for a return to the soil. Given good roads as a ready communication with the world at large and the great hardship and lonesomeness of farm life disappears and the farm home becomes better and more attractive. Plenty of road building and an encouragement of good home building will furnish more of the solution of the back to the farm question than anything else.

THE POLITE EXPLETIVE.

What we used to consider a shocking "cuss" phrase has become somewhat popular lately. First it was an American Major with a "lost batallion" in a tight place on the battle front who when appealed to by the Germans to surrender, electrified the folks back home by answering, "Go to hell." Now comes our mild and modest Herbert Hoover winning applause with the same expression, so it would seem about time to take this phrase out of the wicked class and give it polite standing. The fact of the matter is, that men as well as the girls, are a bit careless in the use of words. We laugh at the girls for their free and careless use of such words as awful and terrible, when they don't mean anything of the kind, but it is the same with men. In common practice use of the term, "go to hell" means nothing more nor less than a picturesquely emphatic refusal to do something that somebody else wants done. There is neither thought nor intent to be sacrilegious nor to curse—it is merely a reaching out for something colorful in the way of language with which to give emphatic expression. And, no matter what we may do about the use of this phrase in everyday life, there is pretty general satisfaction in the fact that it was used on the occasions mentioned here.

UNIFORM COST ACCOUNTING.

Among the good things done at the recent meeting of the Board of Governors of the National Paving Brick Manufacturers Association was to develop the idea of putting uniform cost accounting into practice, and the naming of S. M. Duty as chairman of a special committeen on Cost Accounting to investigate the subject and report a plan, with authority to employ whatever legal counsel might be necessary to that end.

THE PAVING BRICK ANNUAL.

The paving brick manufacturer should realize that this is a year of great promise in this industry, and for him to get the full measure of the good things promised he should be in attendance at the annual gathering of the National Paving Brick Manufacturers Association at Pittsburgh during the week of February 2-8. A special appeal has been made to the eastern manufacturers for attendance and closer organization because of the great amount of road work being planned. The right kind of co-operative work among the paving brick manufacturers should result in getting much more paving brick used in road building than will be used otherwise, and this is the place and the time to get busy at it, and to get other information and assistance that should be valuable during the year.

NON-ESSENTIAL WAR TALK.

The war is over, our soldier boys are being demobilized and industry is busily adjusting itself again to a peace basis, and making good progress at it. So while there is not and should not be any ban on war talk, there is a lot of it being indulged in that doesn't really help us get anywhere. The government has a lot of material on hands that must be disposed of, and we are being assured that this will not be done in any manner that will hurt business. One department at Washington assures us that the government will co-operate with business, another tells us that any infractions of the anti-trust laws will be prosecuted, and so it goes. It sounds like too much protestation of good will and too much talk that really does not get us anywhere at all.

Some are joshing themselves along about the maintenance of war-time prices, some assert loudly that the war wage scale will be maintained, but while all this brass-band parading of oratory is going on old Supply and Demand are coming into their governorship again, values are coming down to a more reasonable level, and the general work of readjustment is moving along nicely with but few hitches.

If those in authority really want to lend a helping hand to business, they can do it by lending an ear and giving heed in their legislative work to the needs of the business world in the way of legislation that will give business a fair chance. That is all the business world asks for or needs, a fair chance to solve its own problems.

STABILITY OF PRICES.

How can we have stability of prices on the products of industry without some form of agreement, or some common understanding which is tantamount to an agreement? That is one of the live questions of the day in almost every line of industry. Not only does the individual manufacturer recognize the need for stable prices to insure prosperity in his

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business, and organizations of business men plead for this but even the government authorities have actively advocated more standardization and uniformity both in products and prices. But here comes the attorney-general of the United States with the flat assertion that he will prosecute under the anti-trust laws any and all who combine or agree to any maintenance of price. It is like telling a man to do something and then threatening to punish him if he does it. The best answer seems to be in a modification of our anti-trust laws, and the creating of some body or tribunal of the government to co-operate with and advise business men through their organizations. It looked for awhile like the Federal Trade Commission would furnish the answer, but the later doings of that body has begotten distrust rather than confidence and it will have to undergo changes in personnel and attitude to re-awaken hope and confidence on the part of the business world. Meantime there is a readily evident need to stabilize prices, and the question is, how may we best do this?

NEW YEAR'S GREETINGS AND CALENDAR SHOWER.

We take this means of thanking our many friends for their kind and generous felicitations in regard to the New Year. There is just cause for us all to be happy and the New Year's greetings which piled in on us were enough evidence of the general spirit of the times. 'Twas indeed gratifying to receive so many friendly messages from one end of the country to the other. We reciprocate in kind and intend to follow to our utmost that old adage, "The friends thou hast and their adoption tried, grapple them to thy soul with hoops of steel." Hundreds of business and personal cards reached our sanctum sanctorium so that space will not permit the printing of a list comprising even a majority. The Calendar Shower, however, was smaller than usual, though all we received were attractive and most acceptable. Those that adorn our walls are from E. M. Freese & Co., Galion, Ohio; The Tuttle Brick Co., Middletown, Conn.; Brooklyn Fire Brick Co., Brooklyn, N. Y.; The Ironsides Co., Columbus, Ohio; The Watt Mining Car Wheel Co., Barnesville, Ohio; H. A. Wheeler, St. Louis; Roessler-Hasslecher Chemical Co., New York City; J. C. Steele & Sons, Statesville, N. C.; C. K. Williams & Co., Easton, Pa.

THE NEW HOME OF THE MINING EXPERIMENT STATION AT PITTSBURGH.

A cordial invitation is extended to all who attend the coming national convention at Pittsburgh by Dr. D. A. Lyon, supervisor, to visit and inspect the new home of the Bureau of Mines, which is located on Forbes street near the Carnegie Technical Institute in the Schenley district. Delegates will be welcomed individually or in groups as it may suit their convenience. Mr. R. T. Stull, superintendent, will be on duty to extend the glad hand to all comers. He advises us that the bureau now has a number of experiments under way which are of great interest to brickmakers.

HOW ABOUT COAL?

There is being placed on the market in Indiana and Michigan a grade of Indiana coal, which is claimed to be superior in quality to any other Indiana coal, and which is especially adapted to the use of burning brick and tile. A few months ago the clay products manufacturers in this territory had great difficulty in securing even a small quantity of coal, so that now they will no doubt be gratified to learn that here at least is one place where they can secure their yearly requirements of coal of a higher grade and that at a cost lower than was formerly the case. In this connection, we refer our readers to the advertisement of the Consolidated Indiana Coal Company, on page 72 of this issue.

WILL HAVE INTERESTING DISPLAY.

The Thwing Instrument Company, Philadelphia, Pa., is planning an interesting exhibit of pyrometers and other temperature recording equipment at the national convention in Pittsburgh, February 2 to 8. As will be seen by their ad on page 73 of this issue, an invitation is extended to the N. B. M. A. delegates to make the Thwing room headquarters during the busy convention week. The Thwing exhibits in the past have always been interesting and we are sure this one will be no exception, but will be both entertaining and instructive especially to those who are studying economy in burning.

A NOVEL NEW YEAR'S GREETING.

The Eagle Iron Works, of Des Moines, Iowa, favored their friends and patrons with a unique holiday greeting in the form of a card in three colors showing the national bird supporting Old Glory and closing with the following apt sentiment:

"Here's to the American eagle,
Proud bird of freedom, all hail!
The bird no one can inveigle,
Or put salt on his beautiful tail."

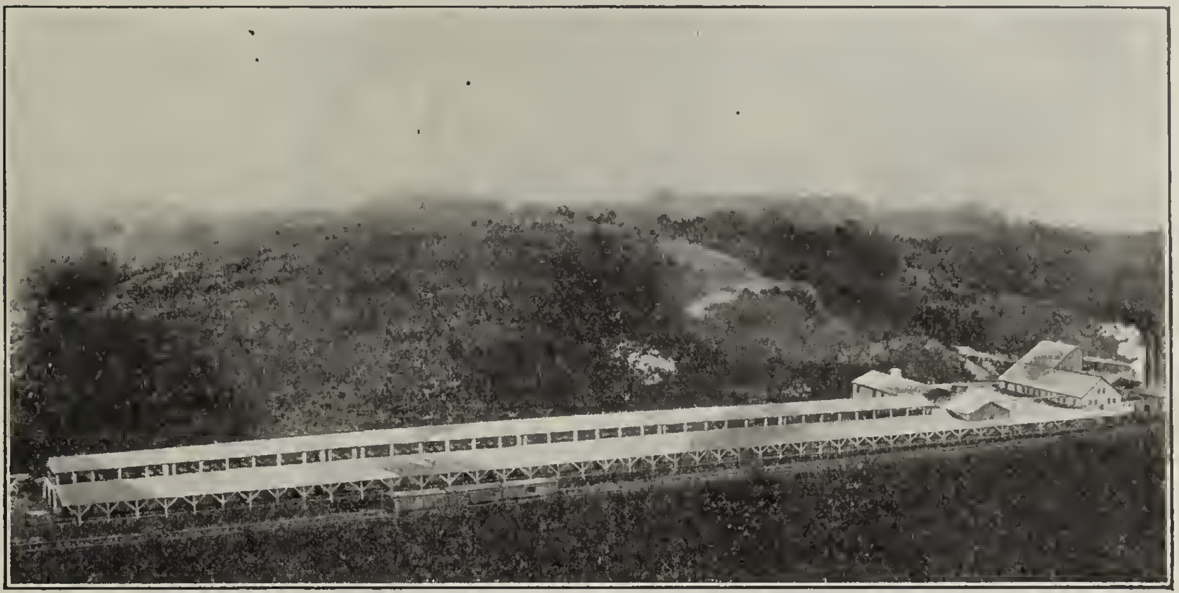
A CONVENTION FEATURE.

The Frink Pyrometer will be in evidence at Pittsburgh, convention week. Mr. Frink himself will be an active member of the "Glad Hand" Committee, as he considers Pittsburgh his "home town" in a trade sense, though Lancaster, Ohio, is real headquarters. See ad on page 66 of this issue.

Kilns and Dryers are the Solution

The cost of coal and labor make every possible saving necessary if you are to be able to compete.

Labor costs are out of your hands and the cost of coal is fixed. You can, however, use less coal and less labor.



Haigh Continuous Kiln

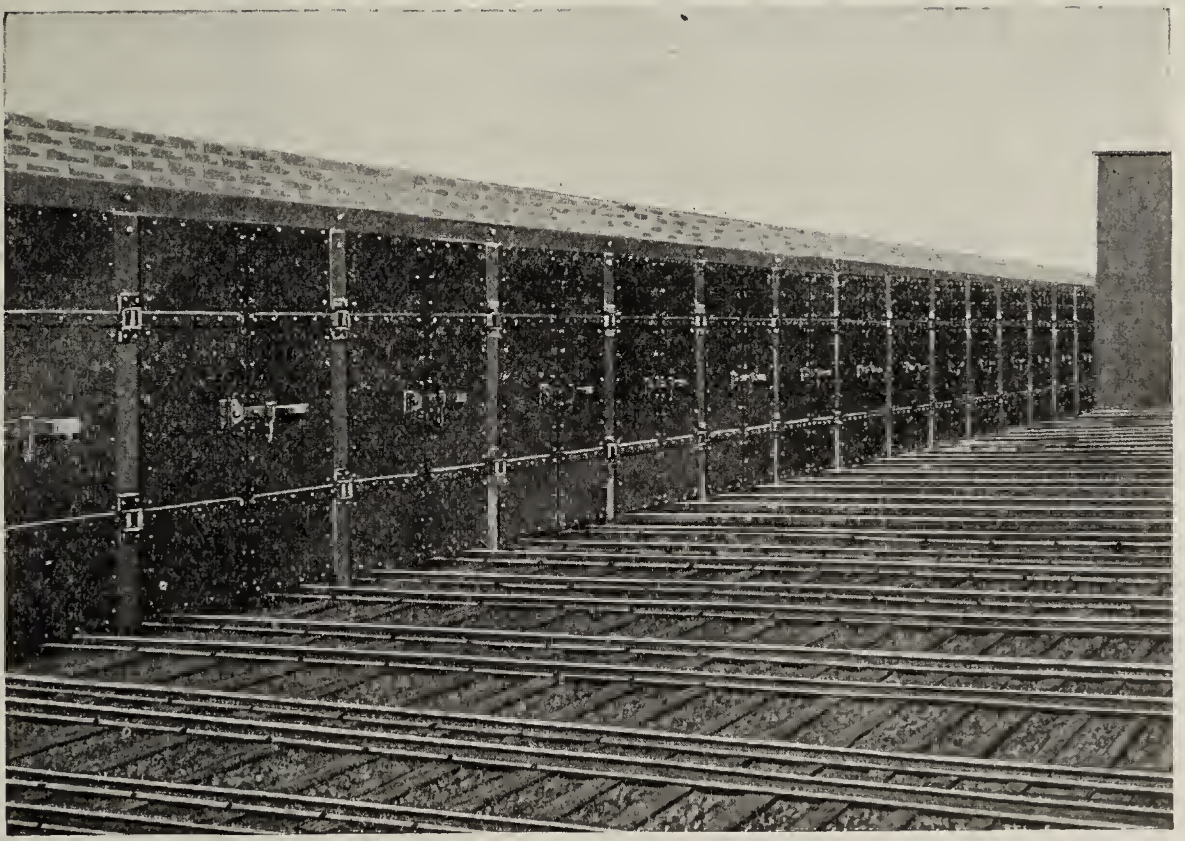
Both coal and labor are cut in two by the use of the **Haigh Continuous Kiln.** This kiln and the **American Waste Heat Dryer** are going to be the salvation of the clay workers in keeping cost down to where you can compete. Both these improvements can be made on your plant and the cost will be taken care of by the saving within a short period. The output will be greater and the quality better.

These are re-construction times and you will find the **Haigh Kiln** and the **American Waste Heat Dryer** will be the most profitable investments you ever made.

Let us send you printed matter on the subject. We will furnish you a plan, an estimate of cost and an estimate of saving. You can then decide whether its worth going ahead with or not.

◆

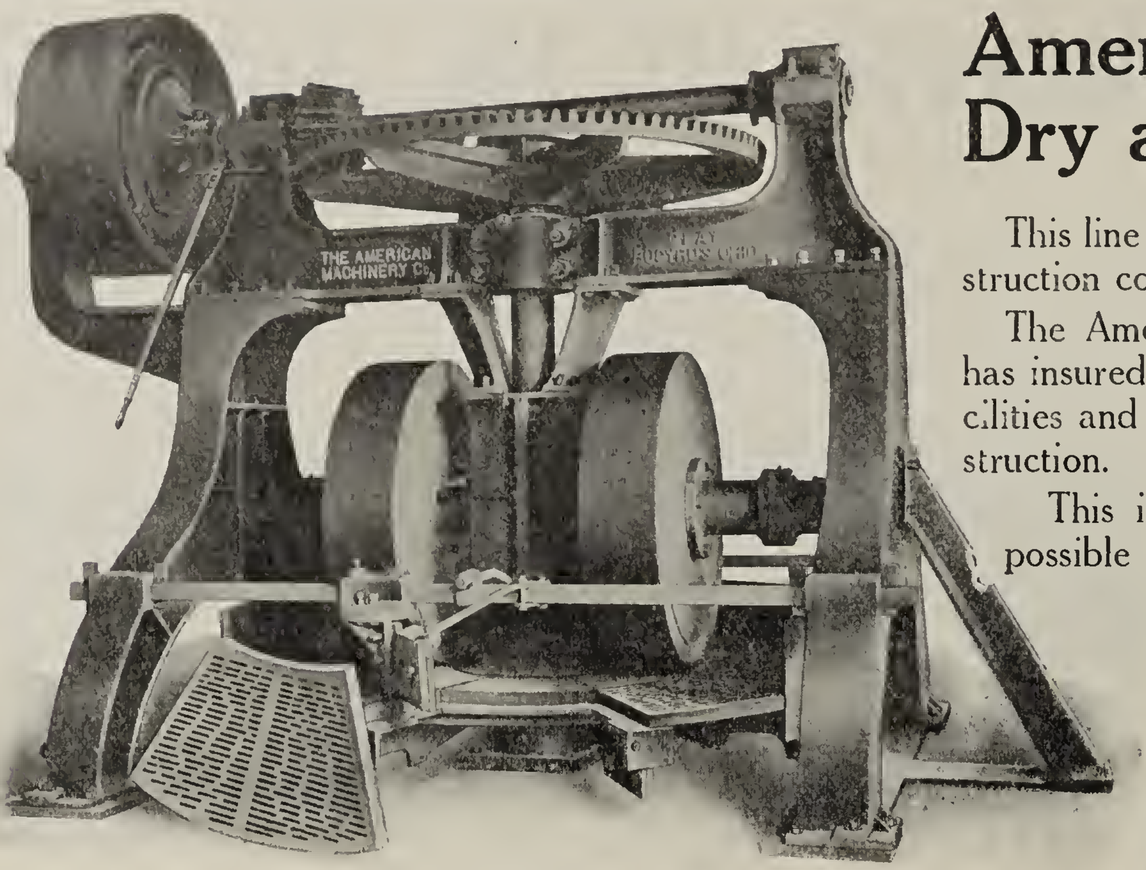
Correspondence Solicited



Receiving End of American Waste Heat Dryer.

The American Clay Machinery Co.

Willoughby, Ohio



American Dry and Wet Pans

This line of pans is all that design and construction could make them.

The American experience and know-how has insured the design and the American facilities and skilled labor has insured the construction.

This is a combination which makes it possible to guarantee more than satisfactory operation of our pans.

Send for Pan Bulletin.

American No. 57 Nine-Foot Dry Pan for Heavy Duty

American

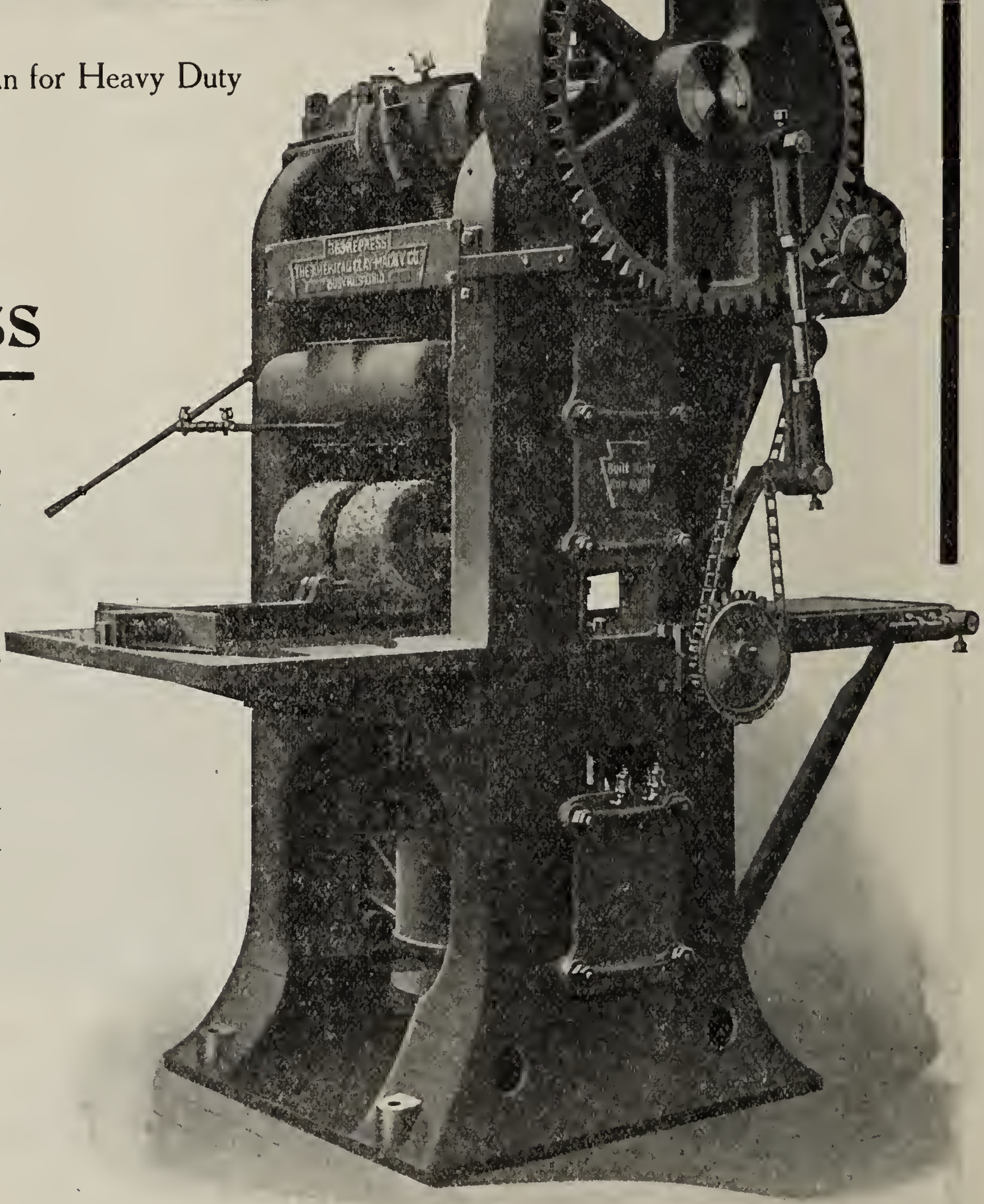
No. 363 Repress

The American No. 363 Repress has a wider range than the ordinary press. It is built heavier and will take a larger block.

In design and workmanship it is the best that could be made.

It has simplicity, staunchness, lightness of power and freedom from possible trouble. In capacity you will find it satisfactory.

Get the No. 363 Press Bulletin. It's free to you.



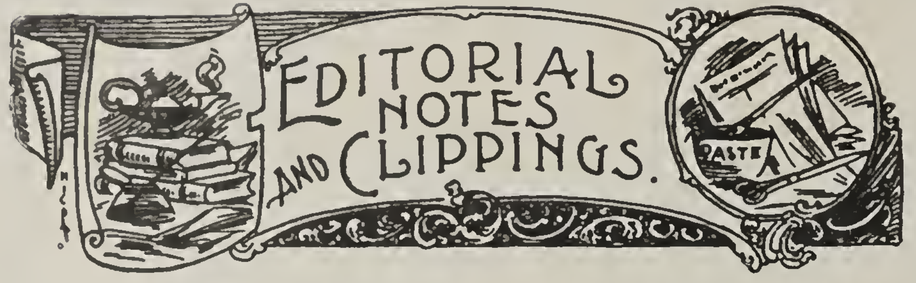
THE AMERICAN CLAY
MACHINERY CO.
Bucyrus, Ohio.

TO BRICK MANUFACTURERS

NOTICE is hereby given that in view of the advertisements of Mr. William W. Dickinson, Jr., of Little Rock, Arkansas, offering the so-called "Dickinson brick setting machine" to the trade —I have had this machine and the Dickinson patents fully investigated and am advised that said machine constitutes direct infringement of patent rights which I own and control. In order to protect the brick manufacturers from liability for infringement suits by purchase and use of said Dickinson machine, I am at once advertising this notice and shall especially notify and hold liable any user of any of said infringing Dickinson Setting Machines.

It is generally known that I own and control dominating patent rights, both issued patents and pending applications, controlling the commercial machines for mechanically handling brick, and I shall enforce my legal rights thereunder and hold all infringers to strict accountability.

R. C. PENFIELD
1619 Conway Building,
Chicago, Ill.



EDITORIAL NOTES AND CLIPPINGS.

John Heyerly, of Craigville, Ind., has purchased the tile plant at Monroe, Ind.

A. C. Ochs, the well known brick manufacturer of Springfield, Minn., and his wife have taken up winter residence at Orlando, Florida.

Hammersmith Bros., of Cumberland, Md., write that they contemplate building a brickmaking plant at that place in the very near future.

Arrangements are being made to start the plant of the Springfield Paving Brick Company at Springfield, Ill., about the middle of February.

Higgins & Grant, Inc., 521 First Ave., New York City, N. Y., would like to take over the sales agency for a firm turning out a good grade of washed clay suitable for the paper trade.

Miss Alice Ochs, daughter of Mr. and Mrs. A. C. Ochs, Springfield, Minn., was married January 7 to Clarence B. Michel. After a short journey the young couple will live at St. Paul.

The capacity of the Harbison-Walker brick plant at Fairfield, Ala., is to be enlarged to double its present capacity. The new plant which will be erected without delay will be devoted entirely to refractories.

The Salverson Face Brick Company, of Petersburg, Ill., through its president, Thomas Salverson and secretary, S. E. Watkins, filed a certificate of an increase of capital stock from $30,000 to $60,000.

The Toledo Cordery Brick Company, of Toledo, Ohio, has been incorporated with $50,000 capital stock. Those interested are Frank Cordery,, H. A. Kesler, H. W. Fraser, P. R. Taylor and Alonzo C. Ruibley.

F. D. Bates of the Fraser Brick Co., Dallas, Texas, in a recent interview, stated that Texas will see a new era in building this spring. His company looks forward to an early resumption of business and will be prepared to meet it.

R. B. Child, Vice-president of the Hancock Brick & Tile Company, Findlay, Ohio, has been appointed receiver for Asa R. Conley of Forest, Ohio. Mr. Conley's brick and tile plant was burned lately, which has led to financial embarrassment.

The plant of the Feldspar & Kaolin Company, which had been operated at Brandywine, Pa., was destroyed by fire recently, which started in the engine room, causing a loss of $20,000. The plant had been closed several weeks on account of labor troubles.

Edward E. McCoy, on behalf of himself and the majority stockholders of the Kittanning Clay Products Company, Kittanning, Pa., has filed a bill in equity in the U. S. District Court asking for the appointment of a receiver to wind up the affairs of the company.

A big pottery merger has been effected at Zanesville, Ohio, which embraces all of the pottery concerns in that district. The company is capitalized at $2,000,000, and will operate under the name of the American Clay Products Co., under the management of Mr. Maddock. Nelson McCoy, A. E. Hull and F. M. Ransbottom are given as incorporators.

The stockholders of the American Sewer Pipe Company, of Pittsburgh, Pa., held their annual meeting on January 9 at 15 Exchange place, Jersey city, and the following directors were elected: George R. Hill, F. H. Walker, J. J. Fisher, F. B. Theiss, W. F. Onspaugh, W. B. Francy, Charles Curris, L. D. Brown, A. S. McCombe, and at a subsequent meeting of the directors, the following officers were re-elected: George R. Hill, president; F. W. Walker, vice president; F. B. Theiss, vice president; A. S. McCombe, secretary and treasurer. The only change in the board of directors is the election of L. D. Brown, treasurer of the B. F. Goodrich company, to replace James C. Young, deceased. A dividend of 50 cents per share was declared, payable on March 20 to stockholders of record as of March 10.

The J. W. Wells Brick Co., of Chattanooga, Tenn., has been recently incorporated by J. W. Wells, R. N. Logan and others with $50,000 capital stock.

Charles O. Grafton, Charles J. Gill, John H. Gill and E. F. Heistand, of Muncie, Ind., has incorporated the Muncie Clay Products Company, with $10,000 capital stock.

The Harbison-Walker Refractories Company of Pittsburgh, Pa., has declared an extra dividend of 6 per cent. on the common stock, payable January 25, to holders of record January 15.

Thomas Kennedy, Jr., of Swansea, Ont., son of Thomas Kennedy, president of the Dominion Sewer Pipe Co., is home again with his family, having received his discharge from the Royal Canadian Dragoons.

The B. Mifflin Hood Company, Atlanta, Ga., has leased the plant of the Legg Brick Co., at Calhoun, Ga., which was recently purchased by John M. Stoner, of Cincinnati, Ohio, for one year, with an option for five years.

Death claims two victims within two days in the family of William E. Sankey, brick manufacturer of Pittsburgh, recently. Just a day after his wife had died from influenza, his daughter, Mary E. Sankey, was taken. A son is just recovering from the disease.

L. E. Shaw, manufacturer of brick, hollow blocks and drain tile, at Avonport, Nova Scotia, writes that he is looking for information relative to a dryer that will be suitable for his plant, and expects to attend the Pittsburgh convention, where he hopes to settle the question.

L. C. Turley and Alan N. Jordan who purchased the plant of the Scioto Fire Brick Company at Portsmouth, Ohio, from C. W. Turner, some time ago, have in turn sold the plant to the Harbison-Walker Co., Pittsburgh, Pa. The plant now has a daily capacity of 30,000 fire brick, many improvements having been made by the recent owners.

The annual mid-winter conference of the officials and salesmen of the Rutland Fire Clay Co., was held at Rutland, Vt., December 31. A. W. Perkins is president of the company which is one of the oldest fire brick concerns in the country. There were representatives from Maine, Vermont, Massachusetts, New York, Pennsylvania, and Illinois.

A. E. Hertzog, assistant superintendent of the Bibb Brick Company, Macon, Ga., had an uncomfortable experience lately when the private levee of the company on the Okmulgee river broke at night, December 22, and flooded properly along the lowlands, causing much damage. Mr. Hertzog, who had been on duty all day watching the river, made his escape in a row boat.

Announcement is made by the Cleveland Builders Supply Co., Leader-News Building, Cleveland, Ohio, of the return of James E. Morrisey as manager of the face brick department of that concern after having been in the government service in the inspection of structural materials entering into big building projects during the war. Brig. Gen. Marshall, in accepting Mr. Morrisey's resignation, expressed appreciation for his able and energetic division of the war department.

Fire of an unknown origin gutted the drying room and power plant of the United States Encaustic Tile Company, Indianapolis, Friday, January 11. The loss was principally in the machinery, which had recently been installed, and ware in the drying room. Hard work on the part of the firemen prevented the flames from spreading to other parts of the factory. W. F. Landers, secretary-treasurer of the company, estimated the loss at approximately $30,000.

The Burton-Townsend Company of Zanesville, capital stock $2,000,000, and the Lake Shore Shale Brick Company of Ashtabula, O., capital stock $600,000, have been merged. The merged concern will keep the name of the Burton-Townsend Company, the capital stock of which has been increased to $3,500,000. Enlargement of the operations of the many plants of the two companies is planned at once. The company has many peace orders, at least two of the plants having the product sold up for next year. Included in the orders which have been booked is one for 160,000 tons of radial brick, used in the building of high smokestacks. The officers are: R. C. Burton, Zanesville, president; William H. Luchtenberg, Zanesville, vice-president and general manager;

DIDIER MARCH

Railway Tunnel Kilns

A Didier March Kiln

USE

10

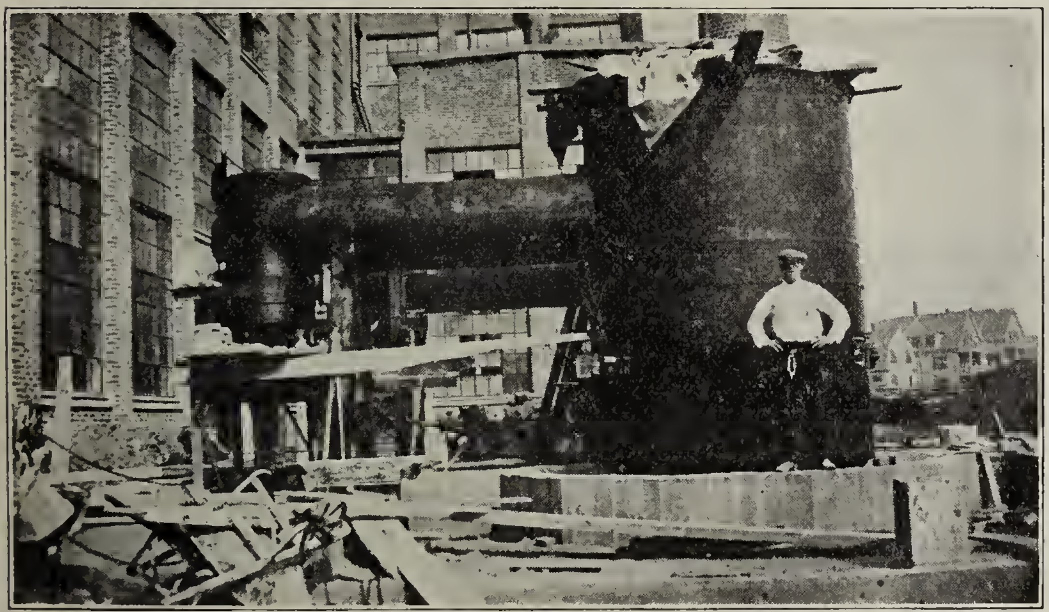
International Producers

Why Not Adapt

International Producers

and

Burners



Construction International Producers

To Your Brick, Tile or Pottery Kilns

International Clay Machinery Co.

DAYTON, OHIO

Mention The Clay-Worker.

EDITORIAL NOTES AND CLIPPINGS.

B. L. K. Brown, Zanesville, vice-president; J. E. Burton, Zanesville, secretary; B. B. Seymour, Ashtabula, treasurer.

C. E. Stafford and others are interested in the erection of a plant at Torchlight, Ky., for the manufacture of fire brick and paving brick.

Incorporation papers have been issued changing the name of the Salem China Pottery Company to the Salem Pottery Company. The capital stock is fixed at $200,000.

Prices, Limited, of Toronto, Ont., of which Charles A. Millar is president, and Isaac Price, vice-president, and the Price-Cummings Co., which is managed by the same officers, will soon put their plants in shape for operating to full capacity in the spring.

Albert Lonyo, president of the Lonyo Brothers Brick Co., Detroit, Mich., one of the pioneer brick manufacturers and contractors of Detroit, died at his home December 20, following an illness brought about by stomach trouble. Mr. Lonyo was in his sixty-third year.

Louis E. Meir recently took over the interests of his brother in the La Crosse Building Supply Co., La Crosse, Wis., which was organized four years ago. Since the partnership was dissolved Mr. Meir has decided to run the business under his own name. Another exhibit room will be installed after February 1st that will have all of the newest textures and shades in face brick. This additional room will make a display of 5,500 brick laid on mortar joints, the largest in the state of Wisconsin outside of Milwaukee. Mr. Meir will conduct the business by the same methods and under the same business principles as heretofore.

The Merrick Brick Company, Inc., of Syracuse, N. Y., has filed articles of incorporation with the secretary of state to manufacture brick, tiles, pipes and other clay and stone products. The company has a capital stock of $42,000 and the incorporators are Floyd C. Van Eseltine of Eastwood, Bertram J. Cummings and Giles H. Stilwell of Syracuse. The company will take over the C. H. Merrick brickyard at Court street and Midler avenue, and for the present will confine itself to the manufacture of brick, making several improvements in the plant.

THE KILN OF SURE CONTROL.

The above is the slogan of the American Dessler Tunnel Kiln Company, New York, N. Y., as shown in their advertisement on page 11 of this issue. The slogan is apparently a truism for the American Dressler kiln is being used on a variety of clay plants throughout the country with unqualified success.

MOTORS FOR INDUSTRIAL PURPOSES.

On page 76 of this issue will be found an illustration of the plant motor of the Brookville Truck and Tractor Company, Brookville, Pa. This truck or motor is peculiarly adapted to clay mines, brick and tile plants, etc. See their ad, or better still, write them for illustrated booklet.

THE DUNN WIRE-CUT LUG PATENTS SUSTAINED.

A recent decision in the United States Circuit Court of Appeals of the Sixth District sustains the patents of the Dunn Wire-Cut Lug Brick Company, Conneaut, Ohio. Frank B. Dunn, the genial manager, will give full particulars to his friends at the coming national convention at Pittsburgh, accompanied, we presume, by the usual carnation.

NEW INCOPORATION TAKES OVER OLD CONCREN.

The E. V. Johnson Co., Chicago, Ill., has been incorporated and taken over the business of E. V. Johnson, one of the pioneers in the fire proof building construction. Mr. Johnson is president of the new company, and will have active charge of its affairs; all those who were associated with him in the business to which the undersigned has succeeded, and who have so ably assisted in the past successes of that business, will join the new organization.

Meet Us at the

Pittsburgh Convention

and get our Booklet on

FRINK METHOD
OF BURNING

The Frink Pyrometer Co.

LANCASTER, OHIO

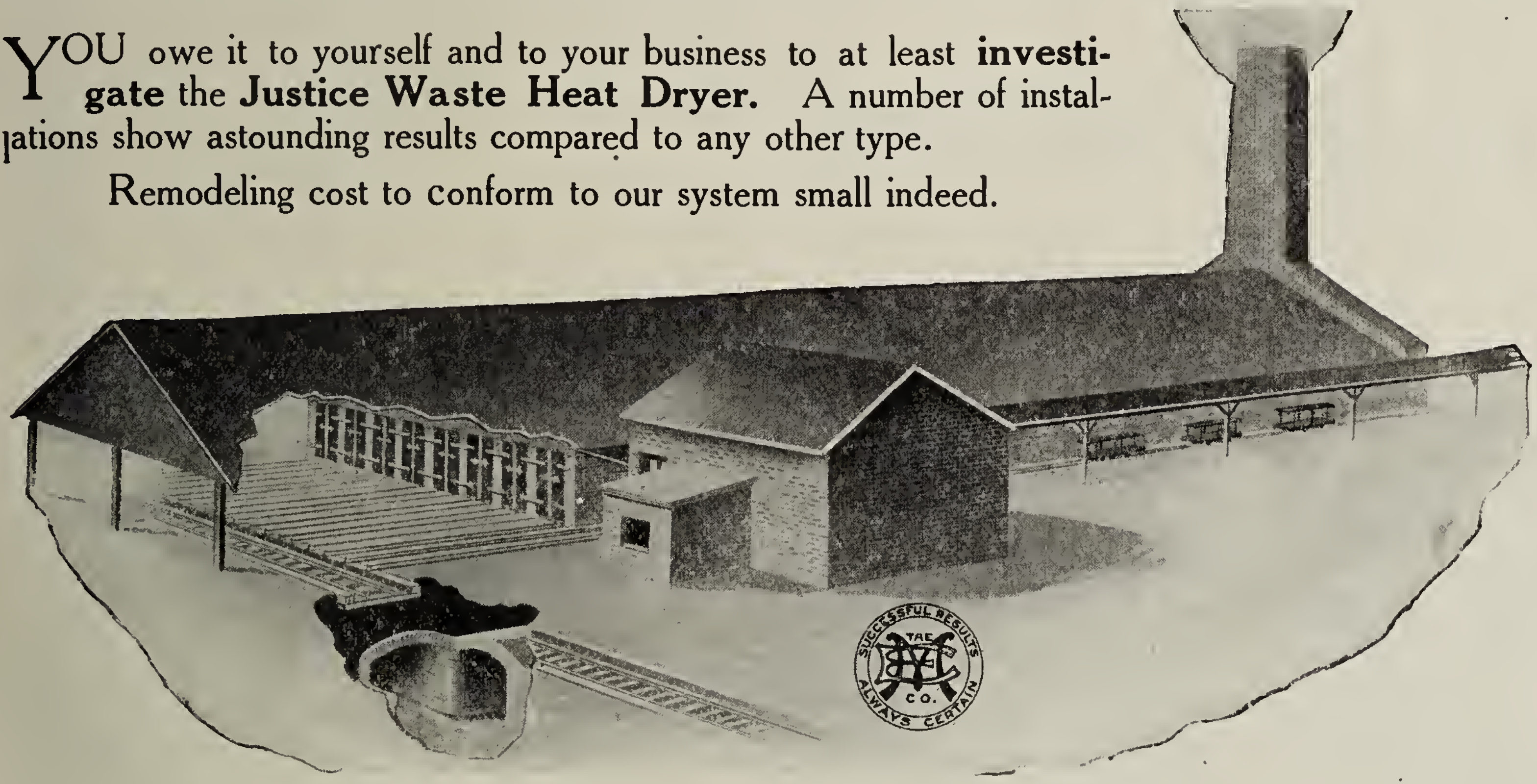
33 PLANTS INSTALLED
The UNDERWOOD GAS SYSTEM

To Date and are Burning Terra Cotta, Porcelain Electric Ware, Fire Brick up to 2,800 F, Pavers, Face Brick, Commons, Drain Tile, Roofing Tile, Hollow Ware and Fire Proofing.

Results Are Enormous. Advantages Great.
WHY NOT YOU?

YOU owe it to yourself and to your business to at least **investigate** the **Justice Waste Heat Dryer.** A number of installations show astounding results compared to any other type.

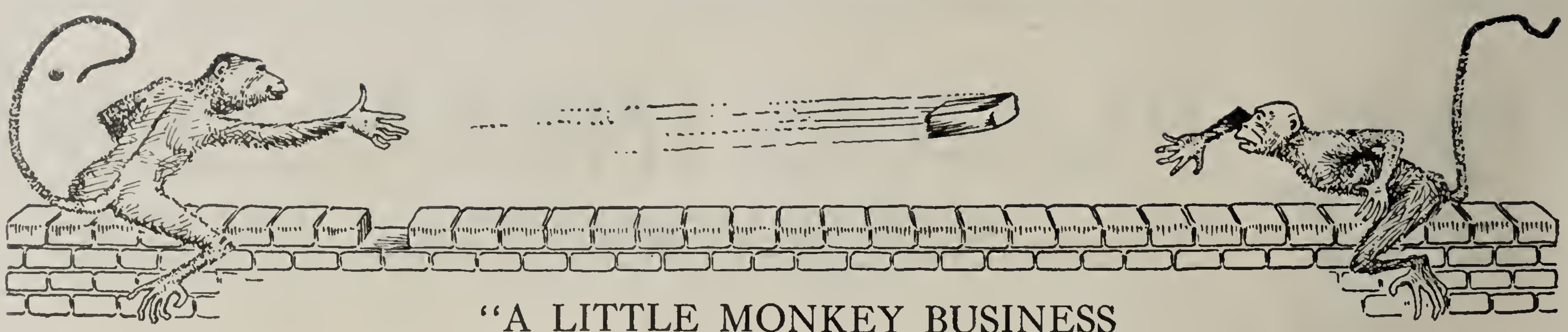
Remodeling cost to conform to our system small indeed.



The Manufacturers Equipment Co.
Dayton, Ohio, U. S. A.

Direct Selling Agents,
J. C. STEELE & SONS,
Complete Line of Clay-
Working Machinery.

PERRY & DUKE,
Canadian
Representatives,
841 College St.,
Toronto, Ont., Canada.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

The Gossipy Male.

"It's difficult flor a woman to keep a secret."

"It must be," answered Miss Cayenne, "if she happens to have a husband as eager to hear gossip as some of the men I know."

His Alarm.

"The government may take over what is considered excess profit."

"What is excess profit?"

"Getting more than you earn."

"There goes my salary," wailed Congressman Blubdub.

Nothing New.

A reporter was interviewing Thomas A. Edison.

"And you, sir," he said to the inventor, "made the first talking machine?"

"No," Mr. Edison replied, "the first one was made long before my time—out of a rib."—Tit-Bits.

A Literal Censor.

Joe T. Marshall, formerly of Kansas, recently became the father of an eight pound boy, and wished to cable the news to his family in America.

The censor refused to allow the message to go through.

"What's the matter?" Marshall asked indignantly.

"We aren't permitted to announce the arrival of Americans in France!"

A Technical Term.

"You do not speak to him?"

"No," replied the scholarly girl. "When I passed him I gave him the geological survey."

"The geological survey?"

"Yes. What is commonly known as the stony stare."—Washington Star.

Why?

Man at Desk—Why do you claim a trombone player is less of a bore than a pianist?

Man in Chair—He is, because he doesn't get the chance. He doesn't find a trombone in every home he visits.—New York Globe.

She Came Down Quietly.

"Frances," said the little girl's mamma, who was entertaining callers in the parlor, "you came downstairs so noisily that you could be heard all over the house. You know how to do it better than that. Now go back and come down the stairs like a lady."

Frances retired, and after the lapse of a few minutes reentered the parlor.

"Did you hear me come downstairs this time, mamma?"

"No, dear. I am glad you came down quietly."

"The last time I slid down the banisters," exclaimed Frances.

A Little Indefinite.

"I cannot tell you where I am," wrote a British soldier to his family. "I am not allowed to say. But I venture to state that I am not where I was, but where I was before I left here to go where I have just come from."

One Way to Chase 'Em.

"Yes," said the good natured person, "I always sing at my work."

"Well, I don't blame you," rejoined the jovial josher. "I never like to have people around when I am busy, either."

His Domestic Economy.

Somebody said to Jamie MacJames one day: "I trust you don't spend all your wages." "That I don't," Jamie replied. "I only spend two-thirds. Two-thirds is all." "And the other third—you bank that, I suppose?" "No, I do better than that with it. I give it to the wife to run the house."—London Evening Standard.

A Varied Program.

The women of a town down the state recently organized a literary club, and for a while everything was lovely.

"Louise," asked the husband of one of the members upon her return home from one of the meetings, "what was the topic under discussion by the club this afternoon?"

Louise couldn't just remember at first. Finally, however, she exclaimed:

"Now I recollect! We discussed that brazen looking huzzy that's just moved in across the street, and Nietzsche."

A Resourceful Man.

A tired "Tommy," loaded with equipment, climbed into a crowded London bus. No one offered him a seat. Finally he took from his haversack a small bomb.

"This is one of the things we use out there, you know," he remarked to two or three passengers. "See this pin here? When I pull it out like this it should explode 60 seconds later. If I put it back again the thing is harmless." Then, beginning to search frantically, "Where on earth did I put that pin?"

Within one minute the bus was empty. "Tommy" watched the passengers leave. Then, putting the bomb back in his haversack, he stretched himself full length on the cushioned seat.

One of the things we are somewhat afraid of is that during the spring many a prospective builder is figuratively going to have heart disease when he gets the cost estimates in on his building plans. Some remedy for or preventive of this is one of the tonics we need to strengthen the tone of the building cutlook.

PENNA CLAY CO.

Brown Pyrometers

Get Facts on What They Save!

See Them at the Convention or Write!

Your profits for 1919 depend on the quantity of quality ware you produce and your cost of producing it.

Brown Pyrometers boost production way up and hammer production costs way down. They give you accurate kiln temperature records to fire to, avoid coal waste and guarantee good burns.

Investigate this at the convention. Brown Pyrometers profit by "investigation" every time. Eighty percent of all pyrometer-equipped brick plants use BROWNS. Come in and let us show you how much Brown Pyrometers will save you.

If you can't come to the convention, write us today for complete information. Address The Brown Instrument Co., Philadelphia, or one of their district offices in New York, Pittsburgh, Detroit, Chicago or St. Louis.

Written for The Clay-Worker.

NEW YORK AND VICINITY.

PRICES FOR COMMON BRICK in the New York market remain about as they have been for the past month. The quotations range as high as $16.50, but perhaps about a dollar under that is the nearest accurate. Some have been offered as low as $14.50, but since sales are small prices are little more than nominal anyhow. Not many have come down the river lately, though it is still open to navigation all the way to Newburg. The truth is that demand is so light that almost nothing is taken, even though a price bargain is offered, as it is sometimes. For a time shipments were held up by the war ships which lie in the river, but they are anchored now and barges can pass them. The days when any movement was in progress barges had to keep out of the river or, at least that portion of it.

When considering the building outlook in New York one must understand that money is hard to obtain. Banks are hesitating about loaning anything of consequence previous to the next Liberty bond issue. Life insurance companies, which have hitherto been among the largest lenders for the development of real estate, are without funds at present. Their surplus has all been invested in bonds. While individuals can dispose of their bonds and in that way release their funds it is difficult for a large institution to do this. Probably numerous building operations will have to await the readjustment of finances before anything can be done. Meanwhile, more than $200,000,000 worth of contracts for building operations of differing characters is ready to give out as soon as money can be found to finance the operations. No one can say definitely when this will be, but the most sanguine is not reckoning on anything much this side of six to nine months, which will be really more than a year for very little can be done in the late fall and winter in this latitude. It is easy enough to make plans and get ready for operations of greater or less size, but it isn't so easy to get capital. That will come later, but in the meantime the situation offers little that helps the brick man. If he devotes his time to educating his public the wait will be profitable.

According to information from the Hudson river yards they are in line for action next spring. A good many of them did not open the past year but all are planning to open and do something this season. It will depend to a large extent upon labor and as yet it is quite impossible to determine what labor will do the coming season. Few can say how much will be available, or what its attitude will be. If it is as independent as it is in some lines now it will not work in brick yards much. Perhaps brick men will find out that those men who have served in the army, in whatever capacity, will not care to go back to the prosaic work of making brick. They are not falling over themselves to resume work at jobs which have been held for them in other industries and brickmakers may find the same lack of interest. In another way, too, brickmakers are likely to suffer. Emigrants will be almost unknown for a time, unless they come from the Central Powers. Other nations have no men to spare. They have important reconstruction problems of their own and workers will find opportunities so good at home that they will prefer to stay there rather than to come here to seek their fortunes. Emigration is not to be expected in any considerable numbers for a time at least. If this means anything it is that brick plants will have to be equipped with labor-saving machinery to do as much work as can be without man power.

Brick men in this vicinity are soberly discussing the changed conditions that exist and realize more strongly than ever before the necessity of adopting and following modern methods of working. A great many of the Hudson river brick plants are doing this, and have been for years, but others are not, and the situation which confronts manufacturers of that character is not promising now.

Manufacturers will not be hampered by fuel regulations when they are ready for operation in the spring, but they have learned their lesson of conservation and hereafter it is safe to say they will not waste fuel in their regular work. Many have installed new arrangements for burning which saves fuel and others have devised various methods which have aided greatly in the conservation of coal or oil, whichever they chance to use. It was a severe lesson, but perhaps was needed. The charge of waste is laid to the door of American clayworkers, and fuel is said to be one of the ways that this waste has developed. On the other hand labor has been so high here that fuel has often been wasted because it was really a move of conservation to do so, provided it saved labor. Improved methods of burning have been so plentifully introduced now that the waste of fuel will in the future be much less than in the past.

BURTON.

TRADE PAPER READING.

It has been well said that the cornerstone of every business man's reading is his trade paper.

It is in the trade papers that he finds the latest thing in methods, movements and equipment, information too recent to have been embodied in books even if it were ever to be put into book form.

The trade paper by specializing and concentrating upon the affairs of the particular branch of business to which it is devoted is not only in a position to have the bulk of the most up-to-date information of the business, but from continued observation and study it is in the same position as the specialist in profession or trade, a position of authority and of acknowledged merit because of confining itself to special lines of study.

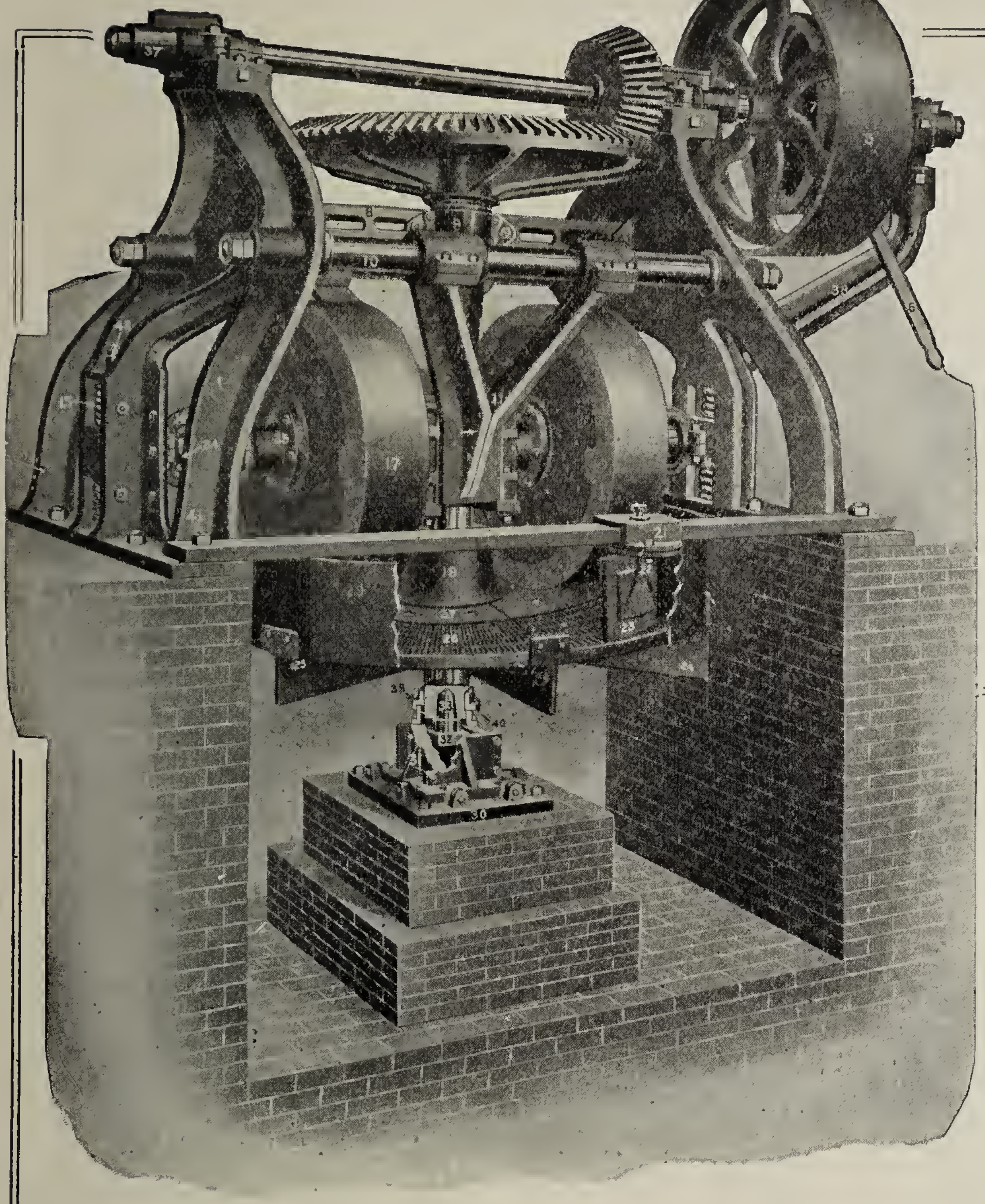
Aside from the news features an important mission of the trade paper is to lay before its readers new ideas and technical information that, as stated above, is too recent to have been embodied in books. In fact the progress of new ideas is often so rapid in trade and industry that by the time they are standardized and put into book form they are really out-of-date. Consequently, while certain data pertaining to every industry can be put into book form and so retained as covering fundamentals of the technical features of the industry, these are seldom ever up-to-date and are not consulted for the very latest information. The latest and most up-to-date information is looked for in the trade papers.

Moreover, in serving out this late and up-to-date information, the trade paper has performed a service that is often quite valuable. Indeed, any trade paper worthy of the name that is read consistently by those in the trade, furnishes more returns for the money invested in subscription than any other class of publication, It is a poor trade paper that will not yield more than ten times its subscription price in the way of valuable information in the course of a year.

With this knowledge before us, there seems very little excuse for any business man neglecting to subscribe for his trade paper, or for leaving it unwrapped on his desk when he has subscribed for it. The man who neglects to read his trade paper is neglecting his own best source of information.

It is a safe guess that as the boys come marching home they will bring with them a new desire for better roads and more permanent home buildings.

THE WONDER WORKER



10 Foot Dry Pan

The Stevenson Company

Wellsville, Ohio

MACHINES for
Crushing
Grinding
Pulverizing

Empounding
Tempering and
Mixing
Elevating and
Conveying all
kinds of Materials

SEWER PIPE
PRESSES for
making
Sewer Pipe
Drain Tile
Hollow Block, etc.

All of the Highest
Class Design and Construction are Manufactured by

The Stevenson Company
General Office and
Works, Wellsville, Ohio

Engineering and Western
Sales Office
Monadnock Bldg,
Chicago, Ill.

COAL! COAL! COAL!

A Good Grade——Reasonable Price

**We are Prepared to Supply You
With Your Requirements**

You will find our coal most economical and satisfactory in the burning of brick and tile.

Our Glendora Coal is Highly Recommended by all who have used it.

We especially solicite the Business of the Clay Product Manufacturers in Indiana and Michigan.

The Riggs Clay Products Co.
Factory at Shelburn, Ind.
Drain Tile and Brick
Sullivan, Indiana.

Consolidated Indiana Coal Co.

Gentlemen;—

We can recommend your Glendora Coal No. IV for Kiln use. It is easily 20% better than any Indiana coal we ever used for burning tile.

We used less tons to the burn, and shortened the time of burning It is much easier on the burner. No clinkers and very little ashes. Any tile maker using this coal once will become a customer.

Very truly yours
J. R. Riggs.

Let us serve you

Consolidated Indiana Coal Co.

710 Merchants Bank Bldg. **Indianapolis, Ind.**

Written for The Clay-Worker.

AMONG PHILADELPHIA BRICK MANUFACTURERS.

THE PHILADELPHIA brick market is marked with a general depression along all lines. There has never been what one might call a business boom for the past two years and it is a current opinion that the climax of trade inactivity was reached with the closing of the past year. At any rate, all look forward to the prospects of the present year with commendable optimism.

It is a well-known fact that the stagnant trade condition was the direct result of government priority rights and the curtailment of building operations for the duration of the war. Labor has been scarcer than ever before with the corresponding result that prices have been forced virtually "to the skies." But, the war is over and the great period of reconstruction is at hand. Many large building operations, both industrial and housing, are under consideration and will be started as soon as the weather permits and though the trade has suffered a severe slump local manufacturers are looking forward to a gradually increasing demand for clay and clay products with the coming of spring.

Several salesmen of the Jarden Brick Company have just returned from the road and have made a very promising report concerning the future outlook for the business. The men made a tour of virtually all the eastern district and are each of the opinion that the business for the coming year will more than make up for the past year's inactivity.

The complete report on building operations for the year of 1918, compiled and issued January 2, 1919, by William Gamble, statistician for the Bureau of Building Inspection, shows a decrease of nearly $19,000,000 in the cost of building construction for the year of 1918 over the previous year. In 1917 there were 6,490 permits granted and 8,977 operations with an estimated cost of $34,016,480. In 1918 there were 5,011 permits granted and 5,950 operations with an estimated cost of $15,452,670.

The Charles Warner Company have sent out a circular letter recounting the trials and hardships "our boys" have endured on the battle-fields of France and Belgium and close their Season's Greeting with a plea for a wider application of fair-dealing and comradeship in our business and social life of the future. With their letter was inclosed a beautiful copy, suitable for framing, of John D. Rockefeller, Jr's., industrial creed embraced in his speech to the recent Atlantic City convention of American business men.

The factory of the McAvoy Brick Company, which has been closed down since May 26, 1918, has reopened and work is being resumed. This firm normally employs about ninety men and they are making preparations to handle the large amount of business which is expected early in the spring.

The American Manufacturing Company reports a large falling-off of sales for white decorative ware. F. B. Clark, salesmanager for the firm, says that their revenue for such material amounts to an average of about $100 in every $10,000 worth of sales.

The National Clay Refinery Company have moved their offices from the Penn Building, this city, to Shamrock, Berks County, Pa. M. R. Wood, president of the concern, says that a desire to have their offices nearer to their factory is the reason for the change in address.

In an effort to stimulate building the Philadelphia Real Estate Board has inaugurated a "Own Your Home" campaign, which will be launched in the near future, probably about the end of January. Local brick manufacturers, and men connected with the allied industries, are evincing a keen interest in this campaign. A QUAKER.

Meet Us at

The Convention

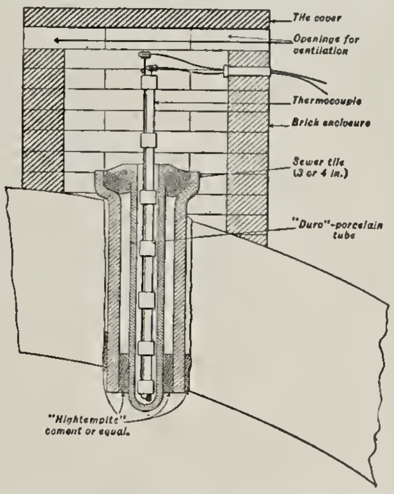
William Penn Hotel

Pittsburgh,

February 2 to 8.

Do you use the right thermocouples and are they properly protected?

Equip your kilns with Thwing base metal couples as shown above, put indicators where the attendants can keep close tab on kiln temperatures and keep the office records by means of a Thwing Recorder. You can then easily duplicate the heat conditions most favorable for fuel economy and for the highest percentage of perfect finished product.



Remember that a pyrometer system gives really necessary information, obtainable in no other way, and that Thwing base metal thermocouples used where temperatures do not exceed 2400 deg. F., give the needed degree of accuracy at a small fraction of the cost and maintenance expense of platinum thermocouples.

Thwing Pyrometers are sold with special, but free engineering service in designing the system to exactly meet existing conditions. We furnish blue prints for making installation of parts for wiring, etc.—and our friendly interest begins rather than ends with the sale.

Tell us your needs and ask for our booklet on pyrometers in clay plants. 25

Thwing Instrument Co.
Lancaster Ave. and Cuthbert St., Philadelphia, Pa.

Make Our Room Your Headquarters

For Room Number Look at the
N. B. M. A. Bulletin Board
in Hotel Lobby.

GANDY-*all through the year*

Right with you at the switch-over from war time to peace-time production!

"Whatever the wind or weather" *GANDY*-the original stitched cotton duck belt-is on the job ready to deliver full power to every machine in your plant.

You can depend upon *Gandy's* inherent strength and tenacity to get *all the pull from the pulley—all through the year.*

And now, at the beginning of a new year and a new era, when you "take stock" of your transmission and conveyor equipment and find replacements and additions necessary, remember that our Engineering Department stands ready to assist you with competent advisory service.

It is the aim of this organization not merely to supply you with belting, but belting plus engineering service that will give you 100 per cent. results.

Yours for a prosperous New Year,

"On-the-Job" *GANDY*

THE GANDY BELTING COMPANY
749 West Pratt Street BALTIMORE, MD.
New York Branch, 36 Warren St.

Look for the Green Edge and GANDY Trademark.

GANDY Stitched Cotton Duck BELT

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.

ALONG WITH OTHER industries closely connected with the building trade, the brick and clay manufacturers on the Pacific Coast are really just starting in on the period of readjustment that naturally follows the closing of the war. It is the opinion of the majority of the trade that even after the final signing of peace, which is expected within the next month or two, it will be several months longer before normal conditions reassert themselves. The thing that is holding building back here now is the cost of commodities and the prices of labor, which have not been so high since the beginning of the state of California. As soon as the adjustment of these two items is completed, there will be, beyond a doubt, vigorous activities in every building material line. And it is this that the brick and clay men are waiting for, using every effort to keep business on a running basis until the call comes for the normal output of their products.

Taken as a whole, the building permits of the principal Pacific Coast cities were in better shape for December than November, which is encouraging news to the brick and clay products dealer, and an indication of the betterment of conditions throughout this section. The permits of San Francisco show a decided increase, the total being almost four times as much as November. Los Angeles also increased her permits over $100,000, over November but the reports for December of the year just past missed meeting the 1917 record by $300,000. The November permits for San Diego were far above the average for the year, and December finds the amount of building reduced to a considerable extent, although, outside of November, the last month of the year was the best since July, 1918. The building permits for Portland were reduced about $200,000 in December, although the reports for 1918 were much larger than the former year. The Sacramento reports follow closely the precedent set by November, but show a slight decrease from the figures given for 1917.

On the last day of the year, the Fresno Pressed Brick and Tile Company filed a petition to have its name changed to the Prescott Brick and Lumber Company. In view of the fact that the company now handles lumber, trays and boxes, and that F. K. and E. M. Prescott have been the active heads of the concern for so long, eighteen years, in fact, and that the customers of the company invariably refer to the business as the Prescott Company, the members of the firm are of the opinion that the proposed name will be an addition to the assets of the corporation.

J. V. Chown, brick manufacturer of Oakland, Cal., has, after many years of experience, made discoveries connected with the reduction of iron ore, that he claims have withstood actual tests. Mr. Chown states that the ore can be reduced by hydro-electric power, which will make the mining of ore in this Pacific Slope section a profitable industry. Heretofore, the iron mines in California had to be smelted with coal brought into the country at an expense too great to render the business profitable. It is Mr. Chown's opinion that his efforts in this field will bring about a decided change in the industry on this coast.

The West Coast Porcelain Manufacturers, a new venture recently started at Millbrae, Cal. by Seattle capital, to manufacture vtirified china plates, cups and other domestic wares, is now reported to be in good running order. The sum of $250,000 has already been invested in the company and heads of the concern state that they are getting ready to expand the business into foreign fields, supplying the market of South

America, as well as Pacific Coast centers. The materials used in the manufacture of the products, which consist mainly of feldspar and china ball clay, are found in large quantities in this state. William P. Horn is manager of the company at Millbrae.

The Gladding, McBean & Co's. plant at Lincoln, Cal., is nearing completion, and the company expects to be in a position to turn out a regular supply of its products by March of this year. A good deal of the machinery has arrived and construction on the various buildings of the plant is nearly finished.

O. C. Steen, of the Oakland Art Pottery Company, recently expressed the opinion that indications of increase in building conditions in the east bay section are very favorable. His company is working to full capacity turning out clay sewer pipe, and is considering arrangements for additional kilns in the near future.

According to latest reports the plant of the Los Angeles Pressed Brick Company at Alberhill, Cal. is turning out 50,000 bricks per day with nine huge kilns in operation at the present time. Plans are being made for the addition of extra kilns, and when the plant is finished the company expects to have at least 20 kilns at work. Fire brick, face brick and hollow tile are the main products of the company, and the material used in their manufacture is procured from the Alberhill Coal & Clay company which owns the mountain of clay deposits in that district.

The death of John F. Miller, of J. F. Miller & Bro., brick manufacturers of Bellingham, Wash., was reported recently.

Machinery valued at about $15,000 has arrived for installation in the Porterville Magnesite Company's plant at Porterville, Cal. Additional buildings were erected to house the machinery.

The contract for the construction of an eight-story class "A" office building in Salt Lake City, Utah, has been given the Larsen-Simpson Company of San Francisco. The building is to be erected for Mrs. Virtue Clift, at a cost of $600,000.

San Francisco, Cal. SUNSET.

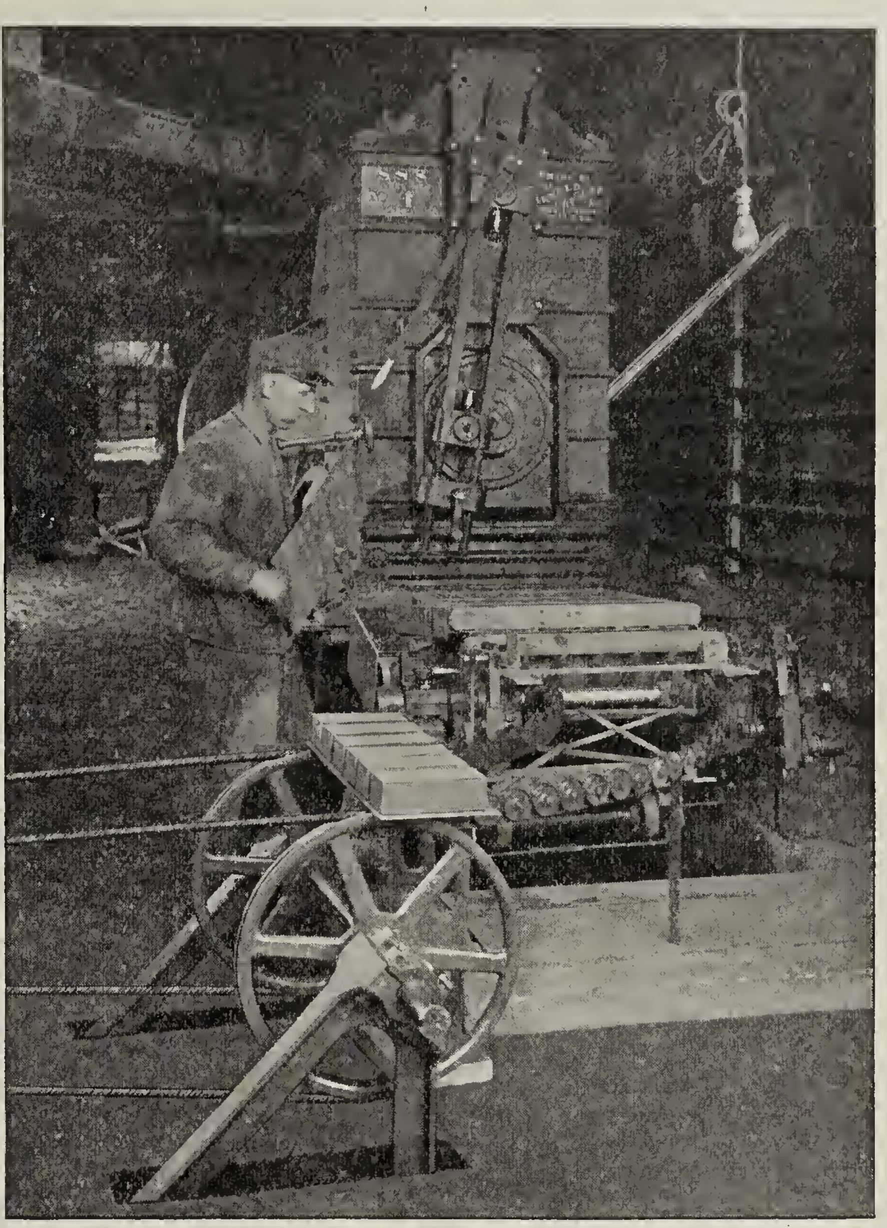
THE CASUALTY LIST OF FIRETRAPS.

At a recent meeting of fire marshals a compilation of statistics showed that the annual toll from fire loss is 15,000 lives and a property loss of $250,000,000. Most of those burned to death are women and children. What a casualty list for the firetraps, and what an argument in favor of fireproof building!

ROAD BUILDING.

The way has been cleared, federal aid has been promised, and all the many agencies concerning themselves with the promotion of good roads are awakening to the opportunities of the day, and all around us there is an air of bustle and preparation for a great era of road building. Let us go to it, and take with us some of the bigness in figures and accomplishment that we have gotten from war experience. We have learned to talk in billions instead of millions and to tackle the larger problems confidently, and that ought to help a lot in the present campaign for road building. Let us build as many roads as we can and as fast as we can, but while about it let us build them right so that they will stand the test of time and service. It is not a time for half-way measures and skimpy construction, but a time for doing right what road building is done, and it is also a time in which more of the roads should be finished with a paving of brick, the one best finish for the ideal road.

The S. S. S. Special Automatic Soft Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

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Drying and Burning
BOSS TEN-HOUR DRYER
Use either waste heat or exhaust steam.
No live steam. No direct firing.
BOSS SYSTEM OF BURNING BRICK
Applies to all types of kilns and will save HALF in your cost of burning.
Let us save Time and Money for you
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Suitable for Coal and Clay Mines, Limestone Quarries, Brick and Tile Plants, Road Building, etc.
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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, IND., FEBRUARY, 1919. No. 2.

AMERICAN CERAMIC SOCIETY HOLDS SPLENDID CONVENTION

OVER TWO HUNDRED CERAMISTS Attend Twenty-first Annual Meeting Held at Ft. Pitt Hotel, Pittsburgh, February 3rd, 4th and 5th. Tremendous Growth of Society Necessitates the Formation of Professional Divisions.

THE twenty-first annual meeting of the American Ceramic Society will go down into the annals of that technical organization embracing all silicate industries including glass, cement, lime and clay products, as the most successful in its history. Indeed, it far surpassed the expectations of even the most optimistic. Many important matters were considered and definite constructive work done to place the society on the best possible foundation. Chief in this, was the formation of professional divisions found imperative due to the large growth in membership resulting from the Society extending its field of usefulness into all industries using silicates in the manufacture of their products.

The majority of the meetings were held in the assembly room on the parlor floor of the Fort Pitt Hotel, which, however, was not sufficiently large nor well enough ventilated to take care of the crowd attending the sessions Tuesday so that those meetings were held in the large convention hall. Monday evening was given over to meetings for the organization of professional divisions, re-unions, committee meetings and other group activities, while Tuesday evening the twentieth anniversary celebration banquet was held in the English room, attended by 217 ceramists.

Badge of Membership of the A. C. S.

Monday morning was given over to a business session. President Staley called the meeting to order promptly at ten o'clock, the first in order being the reading of the President's address. President Staley briefly stated what had taken place during the past year in the Society's activities and made several exceedingly important suggestions on matters which he declared should receive the immediate attention of the members. The points suggested met with the hearty approval of the convention and these matters were taken up and disposed of in their turn. Special committees being appointed to confer with the various standing committees to assist them in taking the necessary steps to facilitate the carrying out of same.

The reports of the work accomplished by the various officers and committees of the Society were presented for approval. These bore out the fact that the results accomplished were exceedingly gratifying, receiving the endorsement of the entire Society.

The report of the Membership Committee showed that the growth in membership was even greater than had been expected. The present total membership being nearly 1,150. The increase in contributing membership is over 100 per cent. In February, 1917, the total membership was 546. In February, 1918, it was 829. The increase of 110 per cent. in total members in two years is a record of which the Society may justly be proud. The energetic, hustling Chairman, Ross C. Purdy and his committee, as well as the members who assisted, should be congratulated on this good work.

In his report, Treasurer R. K. Hursh stated that the Society not only had a substantial bank balance but had also invested several thousand dollars in Liberty Bonds and Treasury Certificates.

The Publication Committee of which L. E. Barringer is chairman, pointed out the success of the Journal of the American Ceramic Society. This monthly journal devoted to the arts and sciences related to the silicate industries was self-sustaining, weathering the first year in far better shape than could have been expected. Much credit is due Prof. Parmelee and others who were responsible for the launching of the Journal and to editor G. H. Brown and L. E. Barringer, the chairman.

The Standards Committee had a long detailed report for it had accomplished sufficient work during the year to be in a position to make definite proposals to the Society relative to the adoption of many of the tentative tests on clays. These proposals are now being printed and will appear very shortly in such shape that they can be presented to the members of the Society for their adoption or rejection. The committee, in order to present suggested changes to the tentative tests, actually carried out the complete testing of four characteristic clays. This work was done in three different laboratories and by different operators. No recommendations were made for the final adoption of tests until the results of these tests had been carefully compared.

A. F. Greaves-Walker, chairman of the Committee on War Service, presented a complete report of the activities of the various members of the committee. This was very interesting and instructive and gave due credit for the splendid service rendered by the members of the committee, namely L. E. Barringer, C. F. Burns, A. V. Bleininger, C. H. Kerr, R. D. Landrum, R. H. Minton, R. C. Purdy, R. T. Stull, E. W. Washburn and A. S. Watts.

C. H. Kerr, chairman of the Committee on Co-operation, reported that he and his committeemen were successful in the work that had been assigned to them. Most of their work was with the various manufacurers. The information which the various members of the committee was able to collect for various manufacturers, no doubt proved of great assistance to these manufacturers.

The Committee on Local and Student Branches, reported the addition of one new branch to be known as the New Jersey Clay Workers and Eastern States Section of the American Ceramic Society. The nucleus for this was found in the New Jersey Clayworkers' Society which has always been a strong organization representing many ceramic industries.

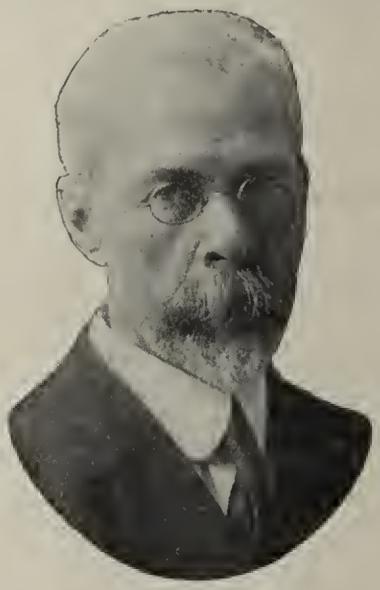
Monday afternoon the continuation of the business sessions was postponed and the reading of technical papers was begun. On account of the cessation of the war many papers dealing with war problems were released. Fifty-eight technical papers were read in all, eight of which treated on the subject of graphite or graphite crucibles, seven on refractories, five on enamels, six on cement, ten on porcelain, nine on glass, four on ceramic raw material, three on glaze, three on plant designing, machinery or operation, one on sanitary ware and the balance on miscellaneous subjects.

Following is a list of the papers:

1. **Bond Clays Suitable for Graphite Crucibles**
   M. Grover Babcock, Pittsburgh, Pa.
2. **Notes on the Properties of Some Bonding Clays and Their Mixtures with Graphite**
   G. H. Brown and E. C. Hill, New Brunswick, N. J.
3. **Tests on Bond Clays for Graphite Crucibles**
   M. C. Booze, U. S. Bureau of Mines, Columbus, Ohio
4. **Direct Volume Determination by Pycnometer**
   J. B. Shaw, Alfred, N. Y.
5. **The Effect of Electrolytes on Bodies Containing Graphite**
   H. G. Schurecht, U. S. Bureau of Mines, Columbus, Ohio
6. **The Effect of the Shape of Graphite Flakes on the Structure and Durability of Crucibles**
   Reinhardt Triessen, U. S. Bureau of Mines, Columbus, Ohio
7. **Effects of Variable Pressure and Tar Content on the Bricketting of Alabama Graphite**
   R. T. Stull and H. G. Schurecht, U. S. Bureau of Mines, Columbus, Ohio
8. **Fusibility of Graphite Ash and Its Influence on the Refractoriness of Bond Clay**
   M. C. Booze, U. S. Bureau of Mines, Columbus, Ohio
9. **Tests Under Brass Foundry Practice of Crucibles containing Ceylon, Canadian, and Alabama Graphites**
   R. T. Stull, U. S. Bureau of Mines, Columbus, Ohio
10. **Apparent vs. True Specific Gravity of Silica Bricks**
    Leon R. Office, Pittsburgh, Pa.
11. **Radioactive Bricks**
    Harry J. Knollman, Philadelphia, Pa.
12. **A Machine for Testing the Hot Crushing of Fire Brick**
    H. G. Schurecht, U. S. Bureau of Mines, Columbus, Ohio
13. **Some Problems of Light Weight Clay Refractories**
    M. F. Beecher, Worcester, Mass.
14. **Dolomite Refractories**
    Chas. A. Stone, Kenova, W. Va.
15. **Zinc Refractories**
    M. Grover Babcock, Pittsburgh, Pa.
16. **Porcelain Pyrometer Protection Tubes**
    F. A. Harvey, Syracuse, N. Y.
17. **The Development of Sillimanite in Porcelain with Time and Temperature**
    A. B. Peck, U. S. Bureau of Standards, Pittsburgh, Pa.
18. **The Progress of Vitrification and Solution in Some Porcelain Mixtures**
    A. S. Watts, Columbus, Ohio
19. **A Study of Some Chemical Porcelain Bodies**
    M. R. Hornung, U. S. Bureau of Standards, Pittsburgh, Pa.
20. **Relative Action of Acids on Enamel—III**
    E. P. Poste, Elyria, Ohio
21. **Comparative Preliminary Tests on Enamel Clays**
    B. A. Rice, Elyria, Ohio

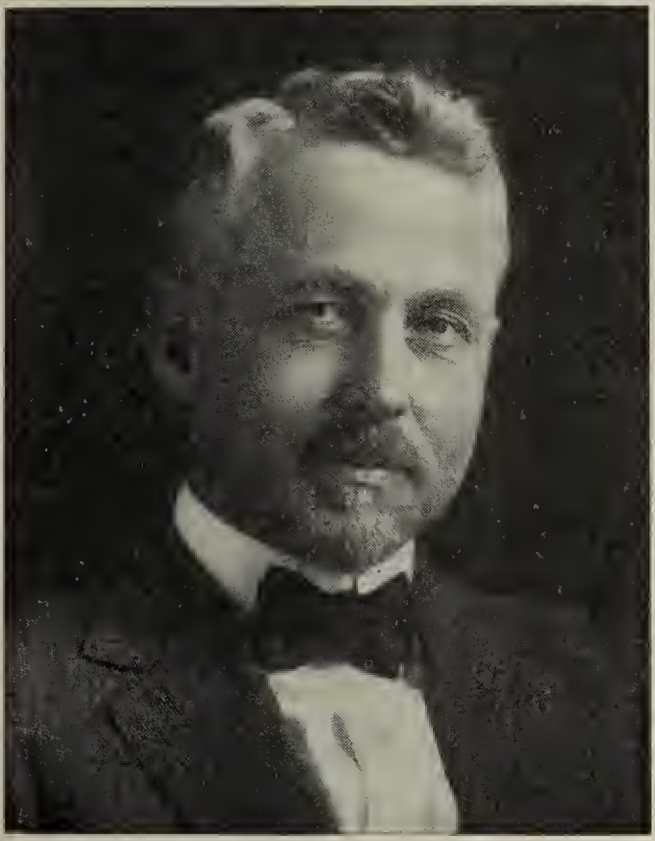
R. T. Stull, President-Elect.

R. H. Minton, Vice-President.



Charles F. Binns, Secretary.

22. Effect of Clay on Fusion Temperature of Enamel
E. P. Poste, Elyria, Ohio
23. The Cause and Control of Blistering in Sheet Steel Enameling
Chester Treischel and L. E. Barringer, Schenectady, N. Y.
24. Magnesium as an Opacifier
V. S. Schory, Tiffin, Ohio
25. Equipment of a Casting Plant for the Manufacture of Glass Pots
F. H. Riddle, U. S. Bureau of Standards, Pittsburgh, Pa.
26. Note on the Casting of Porcelain Glass Pots
J. W. Wright and D. H. Fuller, U. S. Bureau of Standards, Pittsburgh, Pa.
27. Procedures in the Manufacture of Optical Glass
W. S. Williams and C. C. Rand, U. S. Bureau of Standards, Pittsburgh, Pa.
28. Note on the Gases Dissolved in Optical Glass
E. W. Washburn, Urbana, Ill.
29. Defects and the Testing of Optical Glass
A. R. Payne, U. S. Bureau of Standards, Pittsburgh, Pa.
30. Some Experiences of a Glass Chemist
W. R. Gildard, Ballston Lake, N. Y.
31. A New Illuminator for Microscopes and its Application in the Ceramic Field.
Alexander Silverman, Pittsburgh, Pa.



Ross C. Purdy, Chairman.
Membership Committee.

Homer F. Staley, President.

George H. Brown.
Editor Ceramic Journal.

32. Gold Ruby Glass
H. T. Bellamy, Chicago, Ill.
33. The Designing of Factory Lay-outs for the Clay Industries
T. W. Garve, Milwaukee, Wis.
34. Details of Kiln Construction
Marc Solon, Trenton, N. J.
35. A Comparison of American Clays as Porcelain Ingredients
A. S. Watts, Columbus, Ohio
36. White Clay Possibilities in Pennsylvania
R. R. Hice, Beaver, Pa.
37. A New Type of Clay Washer
R. T. Stull and M. C. Booze, U. S. Bureau of Mines, Columbus, Ohio
38. The Comparative Value of Kneading and Pugging in Preparing Clay
L. E. Barringer and Chester Treischel, Schenectady, N. Y.
39. Informal Talk on Crazing
A. V. Bleininger, U. S. Bureau of Standards, Pittsburgh, Pa.
40. The Influence of Body Composition Upon Glaze Behavior.
C. F. Binns, Alfred, N. Y.
41. Some Physical Properties of Commercial Porcelain Bodies
J. W. Wright and S. I. Sewell, U. S. Bureau of Standards, Pittsburgh, Pa.
42. Further Studies in Porcelain
F. H. Riddle, U. S. Bureau of Standards, Pittsburgh, Pa.
43. An American Porcelain Containing no Free Silica
A. S. Watts, Columbus, Ohio
44. Porcelain Bodies for Ball Mills
C. W. Parmelee, Urbana, Ill.
45. Silicious Sagger Bodies
M. R. Hornung, U. S. Bureau of Standards, Pittsburgh, Pa.
46. A Study of the Rate of Dissolation of Carbonate Rocks at Various Temperatures
G. A. Bole, Alfred, N. Y.
47. Experiments in Dead-burning Dolomite
H. G. Schurecht, U. S. Bureau of Mines, Columbus, Ohio
48. A Simple, Direct Method for Determining the Dissociation Temperature of Carbonate Rocks
G. A. Bole, Alfred, N. Y.
49. Oxychloride Cement from Dolomite
J. B. Shaw and G. A. Bole, Alfred, N. Y.
50. Compressive Strength of Cement-Lime Mortars
F. A. Kirkpatrick and Wm. B. Orange, U. S. Bureau of Standards, Pittsburgh, Pa.
51. Notes on Terra Cotta Slips with Reference to the Use of Asbestos and Mica
Hewitt Wilson, Columbus, Ohio
52. The Effect of the Addition of Tin Oxide, Magnesium Oxide, and Barium Oxide to a Bristol Glaze
E. C. Hill, Long Island City, N. Y.
53. Feldspar as a Ceramic Raw Material
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54. Some Problems in the Manufacture of Vitreous Sanitary Ware
Samuel Bedson
55. Ball Mill Grinding
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56. Hard Fire Porcelain
C. C. Lin
57. The Re-hydration of Calcined Clay
J. S. Laird
58. Improved Methods in Optical Glass Manufacture
George W. Morey

Perhaps the most valuable papers presented and most interesting from the standpoint of war problems were those on optical glass read by various members of the staff of the Bureau of Standards. The work done by the Bureau of Mines on American graphites was also of considerable interest. On account of the large attendance of white ware manufacturers from the East Liverpool district Tuesday afternoon a special group of papers were presented on white ware and kindred products at that time. The United States Potters' Association attended the meeting in a body. The growing interest in the Society is welcomed. It is hoped that various members will avail themselves of the technical opportunities which the Ceramic Society has so long offered.

Formation of Professional Divisions

The most important event in the history of the Society was the formation of several professional divisions. This will not only make it possible for those interested in any one subject to spend their time on topics of interest regarding that subject but will also stimulate a good many members to prepare higher grade papers. A great many have not felt inclined to do the necessary work required to properly present a paper and then have it hurried through, not properly discussed and listened to by a lot of people who were much more interested in some other subject. The originators of this professional division arrangement deserve to be complimented on their plan and the Society should be congratulated on the fact that it has grown to a size which warrants carrying out the plan.

A. V. Bleininger, Chairman.
Refractories Division.

Most of the professional divisions were formed on Monday evening. The Whiteware division was formed Tuesday afternoon before the banquet.

The divisions which are formally organized are as follows:

Glass Technology, C. H. Kerr, chairman.
Whiteware, C. L. Sebring, chairman.
Refractories, A. V. Bleininger.
Abrasives, R. C. Purdy, chairman.
Enamel ware, R. D. Landrum, chairman.
Terra-cotta, F. B. Ortman, chairman.
Brick & Tile, M. W. Blair, chairman.
Floor and Wall Tile.

Particular mention should be made of the successful formation of the Glass Technology Division. The members were so enthusiastic that they had several separate meetings of a technical character. They have already secured several new members and it is evident that they are well supported by the manufacturers. This division includes those interested in glass house refractories as well as glass.

The refractories division, under the leadership of A. V. Bleininger, will also be one of the strong divisions in the Society. The relation between glass and refractories is such that the two divisions will have to work together in many cases.

The Banquet.

Tuesday evening was set aside for the annual banquet. This was a celebration of the 20th anniversary of the Society which held its first meeting in the Monongahela House, Pittsburg, 1899. The speakers all gave interesting talks on timely subjects. Among those who spoke were Messrs. Staley, Bleininger, Walker, Richardson, Lovejoy, Washburn, Wells, Barringer and Tillotson. Several references were made to the untiring efforts and final success of Colonel Edward Orton not only in the formation of the American Ceramic Society, but also in the founding of a Ceramic Department at Ohio State University. It was justly stated that Colonel Orton's efforts were largely responsible for the present high standing of Ceramics in the United States not only in the technical and scientific world but also in its application to practice. In passing it might be of interest to note that Mr. E. W. Wells delivered a very eloquent address on the relation of the whiteware manufacturer to the Ceramic Society. The majority of the speakers referred to the early days of the Society and the progress it had made. It was a love feast with good fellowship the keynote.

Final Business Session.

Wednesday afternoon the final business session was held and the standing committees for the ensuing year were appointed. The Rules Committee also presented its report on changes in the rules of the Society which have become necessary on account of the rapid growth and formation of professional divisions. The Committee on War Service was discontinued. A new committee made up largely of the members of the old committee will be known as the committee on research and development. Other committees appointed for the year include membership, standards, co-operation, publications, sections and divisions, rules and papers and programs.

Mr. Samuel Geijsbeek Makes Short Address.

It was particularly fitting that Mr. Samuel Geijsbeek was able to attend the meeting of the Society. He is credited with having been the original suggester of the formation of the Society and attended the first meeting. Mr. Geijsbeek stopped to attend the meeting while passing through Pittsburgh from Portland, Oregon, on his way to France where he has accepted a government commission to assist in reconstruction work.

Installation of Officers and Appointment of Active Members.

A great deal of interest was taken in the report of the scrutineers of the election. The officers for the following year are Mr. Ray T. Stull, president; Mr. Roy H. Minton, vice-president; Prof. Charles F. Binns, secretary; Prof. Ralph K. Hursh, treasurer and Mr. M. F. Beecher, trustee.

Nearly a hundred associate members were promoted to full membership in the society. Last year's rules committee made a change in the rules which was passed by the Society relative to the requirements for full membership. This very just change permits the promotion of persons who are qualified to hold responsible positions as well as those who have contributed papers to the Society.

Before the meeting was adjourned the Society expressed its appreciation of the work done by Prof. C. F. Binns, secretary and Prof. R. K. Hursh, treasurer. It also commended Mr. L. E. Barringer and his Committee on Publications and

Prof. George H. Brown, editor of The Journal.

There is no doubt that the twenty-first meeting of the Society was the best meeting ever held and the enthusiasm shown points to the fact that the future is assured.

Many Industrial Plants Visited.

Thursday was set aside for inspection tours through plants in and about Pittsburgh. Many persons took advantage of this opportunity and went in small groups to various factories. No definite program was laid out on account of the diversified interests, each ceramist taking his choice of the trip to be made. One trip included a visit to the Bureau of Standards, Bureau of Mines and Mellon Institute. All visitors were much pleased with the courteous attention shown them.

CERAMIC SOCIETY PERSONALS.

As usual, Ross C. Purdy was there with bells on but he did not need any musical chimes to let people know he was present. He might be styled the original pepper box.

It was a great treat to many to see the smiling countenance of Samuel Geijsbeek. He is credited with drawing up the petition which was the first step in founding the American Ceramic Society at the old Monongahela House in 1899. He has spent considerable time the past half dozen years or so on the Pacific Coast managing plants and also acting as agent for the J. D. Fate Company.

The twentieth annual celebration Banquet was a fitting occasion and most of the speakers referred back to the early days in the history of the Society. Especially interesting were the reminiscences of Messrs. Walker, Richardson and Bleininger.

There were but few Section Q meetings in which R. L. Frink did not enter as a noise producing center.

President Staley managed to get through his introductory remarks at the Banquet and almost made a speech, leaving those in attendance to speculate as to what they really were.

The assistant secretary, Miss Nora Binns, spent a busy week assisting her father in his strenuous duties of making everyone satisfied and the events of the program come off on schedule time.

L. E. Barringer had his hands full with important committee work but took time to participate in the Section Q meetings and to trip the light fantastic at the N. B. M. A. Smokerette. Messrs. Howe, Clare, Watts and Walker might also be considered in the same class.

A large number of former Ohio State University students were present and it seemed good to hear once more, at the N. B. M. A. Smokerette, the boomerang college yell and the old familiar Wah Hoo.

Some very interesting placards or charts decorated the walls in the corridor leading to the Assembly Room of the Fort Pitt Hotel. These were the originals of the charts which were used in the exhibit at the Chemical Exposition held in Grand Central Palace, September 23rd last year and which illustrated C. H. Kerr's writeup thereof in the June issue of the ceramic journal. These showed, among other things, the value of ceramic products compared with well known manufactured products, mineral products and agricultural products, the membership growth, raw materials of the ceramic industries and the products made from them, dependent industries and the ceramic products upon which they depend, a classified list of the better known branches of the ceramic industries and the vital war products of the ceramic industries.

The total registration was 200 but many failed to register, the exact attendance running perhaps to 250.

Prof. A. V. Bleininger in his talk at the Anniversary Dinner, referred back to the old days of dormitory life at Ohio State University and his trip with Gorton to his first National Brick Manufacturers' Assn. meeting in Pittsburgh when they took the B. & O. train from Columbus because it was not only cheaper but a longer ride. He told of the meeting in the old Monongahela House, his embarrassment and fright in the reading of his first convention paper and how the American Ceramic Society really grew out of the fact that Mr. Gorton's and his paper on glazes were at this time considered too technical, could not receive the proper attention from the manufacturers in the clay industry at that time and the desire to form an organization of men who could consider technical subjects in a way that would give them a greater opportunity to advance their work. Meeting with Bleininger and Gorton were eight others who signed a petition drawn up by Samuel Geijsbeek. The signers of this petition were Lovejoy, Richardson, Ries, Orton, Fiske, Gates, Wheeler, Geijsbeek, Gorton and Bleininger. These were the real founders of the American Ceramic Society for it was through this petition that active steps were taken and the A. C. S. founded the following year. From ten men it has grown to 1150. But today it embraces a larger and more diversified field, for clay products is but a small part of the whole, glass, lime, cement and all materials in the silicate industry having their full share in the make-up of the program and the membership of the organization. The society owes much to these young men who in those early days saw the necessity and had the ambition to put the organization on a firm footing.

A. F. Greaves-Walker, Chairman.
Committee on War Service.

Of the twenty-one gentlemen honored by the American Ceramic Society by holding in their turn the presidency, there were fourteen present: namely, ex-presidents Binns, Walker, Richardson, Bleininger, Purdy, Reis, Watts, Lovejoy, Parmelee, Hice, Barringer, Brown, Staley and president-elect Stull.

A. F. Greaves-Walker, in his report as chairman of the War Service Committee, detailed its activities and complimented highly the several members of same, including: L. E. Barringer, chairman of the sub committee on electrical porcelains; C. F. Binns, chairman of the sub committee on chemical porcelain; A. V. Bleininger, chairman sub committee on refractories; C. H. Kerr, chairman sub committee on optical glass; R. D. Landrum, chairman sub committee on enameled iron; R. H. Minton, chairman sub committee on abbrasives; A. S. Watts, chairman sub committee on raw materials for ceramic industries and R. Stull and E. W. Washburn assisting Prof. Watts. Prof. A. V. Bleininger was commended highly for his splendid work not only in connection with the refractories but also for his valuable work in other directions including chemical glass ware, optical glass and chemical porcelain. His work on glass pots for the optical glass industries, special refractories for the navy department and metallurgical industries was most valuable to the country in those war troubled days. He rendered the refractory manufacturers of the country a great service in advising with them on their war problems and standardizing fire brick specifications. Prof. Watts was commended for his work in the investigation of kaolins of which there was little known previous regarding location and properties of same suitable to meet the requirements and to take the place of those European raw materials which were cut off by the stoppage in imports. His investigations and advice to manufacturers seeking new resources of supply was most valuable. Mr. Stull's work in the investigation of graphite crucibles, kaolin, dolomite, magnesite and chrome, was particularly important, and helped considerably the manufacturers who did not have a sufficient supply of foreign bond clays and graphite. Mr. Kerr was complimented by Mr. Walker for his valuable assistance to the optical glass industry, Mr. Landrum for his work in organizing the manufacturers of enamel ware and the making of specifications for the army and navy, used by officials in making contracts and purchasing, and Mr. Minton for organization of manufacturers of chemical stoneware and securing and distributing the supply of coal, wood, clay, etc., among the manufacturers holding government contracts and his securing priority orders for these materials and shipments. Mr. Barringer was congratulated upon the results of his work and suggestions to the manufacturers which aided materially in the development of porcelains for spark plugs used in aeroplane engines. The organization of the manufacturers of abrasives with the result that the industry was not short of the much needed raw materials for the duration of the war, was duly credited to Mr. R. C. Purdy, who, it was pointed out, gave to the organization information of the greatest value regarding bond clays, saggers, etc., and solved the important problem of an abrasive suitable for the grinding and finishing of optical glass required for binoculars, range finders, gun sights, etc., thus making us independent of the European supply. Mr. Walker also stated that the members of this committee gave much assistance to the government in other directions and many of them received government appointments under the U. S. Fuel Administration. Mr. Walker himself was Chief of the Industrial Furnace Section, in which capacity he was able to render service to the ceramic concerns in the country in securing fuel priorities, fuel allotments, and permission to change from less essential to more essential products. Another important result of the War Service Committee was the securing of recognition for the ceramic courses of the various colleges and placing them on the same basis with other preferred courses.

ENGLISH POTTERY NOTES

THE war has served to stimulate both research and enterprise among the pottery makers in England. This fact is plainly indicated in a consular report of the pottery industry of Stoke-on-Trent, by Consul Robert S. S. Berg. This industry, he says, employs about 80,000 persons directly and indirectly, paying out wages amounting to $17,032,750 a year. And since the war the firms engaged in the business have been fully employed and have been abl to supply many goods formerly secured from the continent.

Perhaps the most significant thing about this report is in that part of it touching the great turning from hand labor to labor saving machines, as that is indicative of what we may expect of the clayworking industry in all its branches and in all the older countries where hand work has more generally prevailed than here in the United States. The report says:

In place of the examples of skilled handicraft which still persist for the fashioning of porcelain, the typical earthenware factory will in the future be manned rather by men skillful in the handling of machinery. The old potter's wheel has been replaced to a vast extent by the jigger and the jolly and the hollow ware pressing and casting methods. These adjuncts are used also in the making of china, but for earthenware they are the dominant feature. A modified form of jolly is used even for the shaping of oval ware. The impression made on a visitor to a pottery is that a standardized product is being turned out at a rate limited only by the capacity of the machine and by the deftness of the men and women in charge of the equipment. It is repetition work subdivided to a very fine point and framed on lines which make for the highest degree of efficiency.

Other than what may be termed the standard body is also obtained by the use of specially-selected lighter burning clays and the employment of complex glazes, a combination which gives an ideal surface for decoration. This is earthenware at its best, and in appearance it challenges comparison with china. The bulk of the output of the factories in this branch of the pottery industry is, however, for general utility purposes; it is the needs of the million that are catered to. In a word, the production of earthenware is a business; the making of porcelain, an art and craft.

Numerous factories in the Staffordshire potteries are now engaged in the production of encaustic and majolica tiles, the latter having the surface molded into relief patterns. These tiles, after being fired in the biscuit oven, are coated with glaze and receive a second firing in the glost oven. Glazed tiles with a plain surface, either white or tinted, are extensively used for covering vertical surfaces, especially in bathrooms and lavatories. The processes in the manufacture coincide almost exactly with those employed in the production of pottery. These tiles are fired in pottery ovens and protected by saggars from contact with the flame.

As with all other manufacturing industries, pottery making, which remained for so many centuries a domain of pure and highly skilled handicraft, has undergone a striking transformation by the gradual introduction of mechanical appliances, simple or complex, to reinforce, speed up, or even to displace a large proportion of the skilled labor that was once the only available means of production. Machinery is used in the preparation of the raw material, the shaping and drying of articles, and in the firing processes.

Such articles as basins, ewers, jugs, teapots, tureens, and vegetable dishes, formerly shaped on a wheel, are now made in plaster of Paris molds, or by an ingenious casting method perfected during the past 20 or 30 years. In fact, casting in various ways bids fair to supersede all the older methods of making hollow ware, even though the problem be complicated by the subsequent addition of spouts and handles. The size and solidity of the articles thus produced would surprise the potters of a generation ago.

The articles, after being duly shaped, are carefully dried in specially devised chambers by means of stoves; they are then ready for the firing kilns, wherein all water and other volatile matters are expelled and the clay and other substances are given the necessary cohesion and wearing qualities.

Considerable progress has been made in devising and improving kilns of the continuous type, and great developments in the direction of full economy and the avoidance of injurious coal smoke are confidently anticipated in the near future.

Written for The Clay-Worker.

AMONG PHILADELPHIA BRICK MEN.

APPROPOS with the general return of virtually all industries to a more normal trend of business comes reports from the local brick and allied industries that "things are picking up." Everyone is glad to find their optimistic outlook of wartime days has been justified, although business has not as yet assumed anything like enormous proportions. The labor situation is still acute and causing no little amount of concern among the Philadelphia brick men. Now that the government restrictions have been lifted the manufacturers are at liberty to increase their output in accordance with their facilities for so doing, but that is where the labor problem comes to the fore and insists upon recognition. It is hard to find a plant in this vicinity that is running at much more than fifty percent of their normal production—caused mainly by the shortage of labor. However, with a gradual increase in the number of inquiries, local manufacturers feel that it is just a matter of time before there will be sufficient labor for their needs and everyone is in an optimistic frame of mind.

A very encouraging report comes from the offices of Chambers Bros., of this city, to the effect that they are experiencing a gradual increase in the number of inquiries, and that no small portion of these are from foreign sources, mainly France and Belgium. This company has just recently made some large shipments of machinery to various points in the United States, one of the largest of these being a complete shipment of brick machinery to a plant in Little Rock, Ark.

George W. Keller, sales manager for the Brown Pyrometer Company was in attendance at the Pittsburgh convention with the firm's exhibit. The firm reports business as picking up but feels somewhat concerned over the present scarcity of labor.

The Philadelphia Brick Machine Works (George Carnell, manager) is the authority for the statement that by the first of March, manufacturers of brick, brick machinery, etc., will find that business will have again assumed a more normal trend. They even go so far as to predict that the year of 1919 will go down into the annals of the clay manufacturing industry as being a record year for big business. Considering the unprecedented number of building operations now under consideration in this section of the country and the extensive demand that will undoubtedly come from the devastated war regions of Europe, it would not be surprising if their optimistic outlook was well founded.

The number of building operations in this city for the month of January shows 351 operations, and the amount expended $684,505. Although the number of permits was greater than for January, 1918, the total cost of January, 1918, operations, $1,684,510, was more than one million dollars in excess. Builders are waiting for a reduction in the cost of material and labor, it is said. The 1919 January list of operations covered a variety of types. The largest operation was the roundhouse, costing $72,000, put up by the Pennsylvania Railroad in the Thirty-ninth Ward. Upon three- story dwellings $46,000 was spent. Garages cost $25,525, while for miscellaneous alterations and repairs the estimated cost was $330,655.

Ostrander Fire Brick Company, Troy, N. Y., have instituted proceedings against William M. Jackson, Bourse Building, to recover $180.54, alleged to be due for bricks.

The Philadelphia Housing Association, in a letter sent recently to Director Datesman, of the Department of Public Works, pointed out the need of thickly settled districts for a definite program of sewer extensions. According to the Bureau of Health there are a total of 165 miles of built-up city streets without sewers.

The Lavino Refractories Company, of this city, are erecting a plant to manufacture fire brick and furnace linings from crushed ganister rock, less than a mile south of Womelsdorf, Berks County, Pa. The industry will employ more than 200 men. A deposit of this rock, rare in this section, was discovered some years ago on the slope of the South Mountain between Womelsdorf and Newmanstown, but no effort was made to develop it until a few months ago, when the plant was projected.

The Lavino interests are identified with blast furnaces at Sheridan and Lebanon making ferromanganese, and took up the ganister rock proposition because of the scarcity of good material for making fire brick for blast furnace lining.

The company has purchased 130 acres of the ganister or silicous clay rock, and the plant now building is the only one in this section. There is one other at Mifflin, Pa.

Dr. H. M. Walters, of Mount Penn, Reading, a geologist, formerly of Lancaster, discovered the ganister rock by accident. He interested the Lavino furnace people in the deposit and the result was the organization of a company with Doctor Walters as vice-president and general manager. Six kilns, each thirty-eight feet in diameter, with a daily capacity of 40,000 brick, are being erected on a tract of six acres. The plant will have its own railroad siding.

R. M. Patterson, of this city, is superintendent of the operation, and has 150 men at work at $3.50 a day. The fine weather has materially aided in getting the works near completion. A big crusher is being constructed, and an aerial trolley operated by power will carry the crushed rock to storage bins. From there the rocks will be sent to mixing and moulding rooms and then to the kilns. Each brick must be dried twelve hours before it goes into a kiln.

A. QUAKER.

LINCOLN HIGHWAY OFFICERS.

At the recent meeting of the Board of Directors of the Lincoln Highway Association at Detroit the following officers were elected for the year:

F. A. Seiberling, President.
Henry B. Joy, Vice-President.
R. D. Chapin, Vice-President.
H. C. Ostermann, Vice-President and Field Secretary.
Carl G. Fisher, Vice-President.
A. F. Bement, Vice-President and Secretary.
Emory W. Clark, Treasurer.

SURPLUS GOVERNMENT BUILDING MATERIAL.

An estimate of the surplus building material left on hand when hostilities ceased that will now be disposed of by the government, shows the following:

Brick	14,516,000	
Hollow Tile	2,235,403	pcs.
Lumber Ft. B. M. Veneers and Plywood	350,000,000	
Cement	115,523	bbls.
Lime	77,560	bbls.
Flue Linings (Lin. Ft.)	29,226	
Metal Lath Sq. ft.	1,122,313	
Wood Lath	2,695	M
Wallboard (All kinds)	5,406,429	
Roofing—Rolls	202,208	
Building Papers—Rolls	52,377	
Nails—Asst. Sizes	159,622	kegs
Reinforcing Steel	3,000	tons
Sewer Pipe—Asst. Sizes (Lin. ft.)	577,407	
Wood Shingles	908	M

N. B. M. A. Holds Most

MUCH CONSTRUCTIVE WORK ACCOMPLISHED—GREAT Interest Shown in the Well Handled Subjects of "Build Now," "Our Labor Problems," "Fire Prevention," "The Evolution of Shipping," "Plant Management," "Industrial Highways," "Industrial Reconstruction" and "Fuel Economy."

THE THIRTY-THIRD ANNUAL Convention of the National Brick Manufacturers' Association, like all that have gone before, was remarkable for the good fellowship that characterized the proceedings both formal and informal. This made the little troubles incident to an overcrowded hotel non-essential. Delegates began to arrive Monday, a few having preceded them Sunday, and the hearty salutations and friendly greetings of those coming later made them forget, if not forgive, the annoyances which made the hotel desk the storm center throughout the week.

As is always the case, some of the faithful were conspicuous by their absence. Letters and telegrams from them expressing regrets and conveying best wishes for a successful meeting made amends in part for their absence. The rank and file were on hand and made their presence felt in such a manner that the days were both merry and busy for all who were in attendance, old and young. New members mingled in happy throngs in the spacious lobbies and luxurious lounges which are the distinguishing features of the William Penn Hotel. The attendance was large, running all told close to five hundred, all that could be expected in view of the conditions which exist in the industry which just at this time seems to be beset with uncertainty. Happily, though, the concensus of opinion was decidedly optimistic. An early revival of building operations being generally predicted. The final Numerical Roster printed and distributed at Pittsburgh, proved a total attendance of over four hundred, and there were several late comers, who registered too late to be included. Then, there was an unusually large number present who for one reason and another neglected to register. Just why this is true is hard to divine, but true it is and "pity tis, 'tis true." Not a few of them were conspicuous in the lobby talks but for some reason known only to themselves they were not bebadged. One reason perhaps, was that the Secretary's headquarters was not conveniently located. However, the enthusiasm and enjoyment of all present was unbounded.

The old saw, "there is nothing new under the sun" was disproved by several incidents, notably: the nomination of Secretary Randall by cablegram from far away Scotland. That nestor of the Southern brick craft, J. W. McMillan, of Milledgeville, Ga., who is visiting Scotland, his native land, performing the unusual stunt through his friend and neighbor Vice-president Dunwody. That certainly was something new in N. B. M. A. annals. Another new feature, much commented on, was the illuminated bulletin presented to the Association by the Hoosier Entertainment Committee. It occupied a conspicuous place in the lobby near the elevators and was a great convenience to the members in locating the boosters who, contrary to expectations, were not grouped on the sixteenth floor, but were assigned rooms at random, it seems, a "mess" that it is devoutly hoped, may be avoided in the future, as it has been in the past.

As the absentees will see when the full proceedings are published in the Convention number of The Clay-Worker, the sessions were of unusual interest. It was generally conceded that the program was in many respects the best ever. Be that as it may, there were a number of instructive papers presented, all of which will be given in full, as usual in the forthcoming Convention issue. The luncheon Thursday noon, at the Chamber of Commerce, and the session following were exceptionally gratifying; the illustration of plants and particularly the moving pictures of the Danville Brick Company, afforded pleasing diversions that were heartily appreciated.

The joint session Friday morning with the Building Officials of the leading cities of the country was a departure from the regular order that proved of great interest, so much so that it is anticipated that similar combinations will be planned and arranged for at future conventions. All the sessions were well attended and the discussions were earnest and instructive.

The social or entertainment features were exceptionally pleasing. The Smokerette Wednesday evening was declared by the old timers who speak from experience to be the most enjoyable of all informal meetings. Certainly the young folks enjoyed themselves. The banquet was indeed a rare treat, such a feast of post prandial oratory and wit has seldom been enjoyed by blase banqueters. This, too, will be apparent to our readers when the full report reaches them. Toastmaster Laughlin kept his audience on edge, his wit being of the spontaneous sort that challenged clever repartee from the toasters themselves.

One incident that caused much favorable comment was the election to life membership of charter members, Anthony Ittner, of St. Louis, and J. M. Blair of Cincinnati; a fitting recognition of long and faithful service to the brick craft and the National Association.

The exceptional contributions to the literature of the trade were made by Dr. Vander Pyl, who speaking for the U. S. Department of Labor made a profound impression, as did also Ira H. Woolson, who came as a representative of the National Board of Fire Underwriters. The ever present problem of freight regulation was ably presented by John F. Lent. The "Fuel Question" in its various phases was the theme of a discourse by A. F. Greaves-Walker. A new thought was injected by Third Vice-President elect Thomas E. Wilson, who suggested that brick be sold by the ton instead of by the thou-

Successful Convention

CLAY PRODUCT MANUFACTURERS FROM FAR AND Near Gather to Attend This Most Important Meeting—Held in Pittsburgh, February 5th, 6th and 7th—Machinery Firms Report That it Was the Best Ever From a Business Stand Point, Which Augurs Well for Reconstruction.

sand. His argument provoked much discussion. Our own educators and technicists, Dr. Bleininger, Prof. Hursh, Elsworth Ogden, and the lay members of the Committee on Technical Investigation made valuable contributions to the proceedings.

Pittsburgh proved itself a great convention city and Pittsburghers demonstrated anew their unsurpassed faculty for entertaining visitors and guests. The ladies were shown many courtesies, chief of which was a theater party at Nixon's Wednesday afternoon, and a luncheon at McCreary's, one of Pittsburgh's largest department stores, on Thursday.

CONVENTION BRIEFS.

"Massa" John Sibley smilingly admits that this year's darkey stories should have a war flavor. Of course his always have the Sibley flavor.

W. W. Dickinson, Jr., of Little Rock, Ark., was one of the busiest men at the convention. And he also admits that they had a pretty busy time of it last year down at their plant.

George O. Berry, of Columbus, Ga., says that the business outlook down their way is very good, and he thinks there will be at least a normal amount of building this year.

Jotham Post, East Williston, L. I., says that the folks over his way made so much money during the war period that they are more concerned it seems with having a good time spending it than they are with building, and he is afraid this may interfere with building operations this year, but he feels pretty sure that the building will come by and by.

John T. Hummert, pioneer of the Gem City Brick Co., Quincy, Ills., is so happy over the return of his son from service that he is not inclined to worry much whether school keeps in the building industry or not.

Howard H. Oberly, of the James B. Oberly Co., Wilmington, Del., says that they had a very good business part of the time last year, but he is not sure yet what the present year holds in the way of business prospects. At present the outlook is not so very promising, so as they have a fair stock of brick on hand there is no special urge for heavy running this spring.

Two of the cheerful delegates at the convention who take an optimistic view of the building prospects ahead were J. C. Robinson, of the Clay Products Corporation at Hampton, Va., and A. V. Sturgeon, of Norfolk. Mr. Sturgeon manufactures stiff mud brick, while Mr. Robinson's firm makes brick, block and drain tile.

Prof. A. V. Bleininger, of the Bureau of Standards, Pittsburgh, says that there is still lots of research work to do, but it is not quite so urgent now. They have time to breathe and to deliberate more and this makes it better and more satisfactory all around.

Frank R. McCannell, of the Milton (Ont.) Pressed Brick Co., says that the weather man has been rather sparing of snow and cold weather up in Canada too. They are near Toronto and are fortunate enough to have a raw material from which they can make quite a variety of colors in brick including buff, red, dark and green.

G. Frederick W. Price, assistant architect and Chief Inspector of the Building Department of Toronto, Canada, says that they are not facing any idle labor problem yet in Canada. In fact it is the other way around and they are still short handed and probably will be for a good part of the year.

J. M. McClave, salesmanager of the American Clay and Products Co., of Cleveland, Ohio, says that the clay trade has not yet hit anything that looks like a busy pace, and just when it will depends largely upon how rapidly industry readjusts itself all around. Their product includes fire clay, pottery clay and crucible material.

Mr. and Mrs. Henry C. Kleymeyer, of Evansville, made a combination business trip and visit east before the convention, and because they had been away from home so long they broke away from the convention Thursday evening. Mr. Kleymeyer thinks that building prospects depend considerably upon how the labor problem is solved.

D. Warren DeRosay, of the Corry (Pa.) Brick & Tile Co., and D. R. Potter, of the Thornton Fire Brick Co., Clarksburg, W. Va., had one interesting buttonhole session in which the main subject was that of comparing experiences with government orders. And from their experiences and that of others it would seem that practically every man who was working on government orders when the armistice was signed still has some unsettled accounts with Uncle Sam. It suggests that a good deal of working capital that might be made use of in restoring industrial activity is still tied up with government red tape.

The Western Clay Manufacturing Co., of Helena, Mont., which was represented at the convention by Manager C. H. Bray, has a great shale property which is right on top of the Continental Divide, and extends down 500 feet or more. They bring in the raw material by train for their year's run during the two mid-summer months of the year, and last year with all the transportation shortage they were fortunate enough to get good railway service. In fact the railroad administration, under a guarantee of so much tonnage a day simply turned over a work train to them and let them use it steadily till they had garnered what shale they needed for the year's run. They make brick, block, sewer pipe and drain tile, and this year they expect to make silo block as considerable interest has been awakened in their country in silos. Also they have some good brick jobs in sight and are cheerful over the outlook for the year.

AMONG THE CONVENTION LIVE WIRES.

THE machinery and supply firm contingent was badly handicapped this year, the hotel management of the William Penn seemingly doing its "derndest" to scatter them to the four winds. When preliminary arrangements were made, it was agreed that the 16th floor was to be given over to the machinery concerns. It is a safe venture to state emphatically that the next annual convention will not be held in any hotel which is not willing to accommodate and work with the machinery clan for it is one of the interesting and pulling forces of the annual meetings.

Much though they were handicapped this year, they made a splendid showing, the bulletin board in the hotel lobby donated by the Hoosier Entertainment Committee from the money left in the treasury after the Hoosier Convention, being a most fortunate and suitable gift, assisting in giving directions to the rooms of the machinery firms which were scattered from the 1st to the 17th floors.

The American Clay Machinery Company did not have its usual large and spacious headquarters, due to the lack of cooperation on the part of the hotel management. We are sure they would have been there with bells on had there been any real opportunity to secure accommodations required. However, they had a large delegation of representatives present, including L. W. Penfield, and his son J. A., C. B. Sharer, L. B. Stockwell, E. J. King, J. E. Brown, L. Haigh, R. O. Perrott, L. R. Shankland, W. J. Carmichael, F. A. Ierlan, Jas. P. Martin and L. B. Stockwell. They exhibited catalogues, blue prints and a large amount of well printed literature in their room 464 and presented with their compliments a most acceptable memoranda book. They all agreed that the prospects look very good for the American Clay Machinery Company getting its full share of business this year.

"The Chase Foundry & Mfg. Co., of Columbus, Ohio, who builds a complete line of Dryer and Clay Cars, also Narrow Gauge Railway Systems, complete, for clay products plants, was represented at the convention by their Sales Manager, A. J. Dunn. This company reports very good prospects for the coming season, and wishes the public to know that the fire that occurred at their factory last fall, did not destroy the departments in which dryer and clay cars are built. They report that their new buildings are completed, which greatly increases the capacity and enables them to make very prompt deliveries of dryer and clay cars, equipped with their well known "Chase Patented Flexible and Reversible Boxings."

W. W. Dickinson, Jr., Little Rock, Ark., was on the job early and late and his smiling countenance indicated times were not dull to this southern gentleman. He was there to have a good time, take advantage of the many good ideas expressed in convention sessions but principally to explain the many merits of the Dickinson Setting Machine, pamphlets fully describing same being distributed freely. We hope he never misses a convention.

W. D. Richardson, Ceramic Engineer, representing also the Ceramic Supply & Construction Co., Columbus, Ohio, spent most of his time during the sessions in the Convention hall, believing this a duty of membership, as well as a matter of courtesy to the speakers on the program. He says the program was a hummer, and the papers presented worth many times the Association dues. He reports increasing interest in his continuous kilns, and that several more will be built this year.

The Conneaut Shovel Company was represented by C. W. Joslin and C. J. Walsh. They held forth in room 1452 where they exhibited a variety of their shovels, highly recommended for use on clay product plants. Much interest was shown in their Diamond Point Scoop which can get to the bottom of a car in one-third the time than an ordinary shovel.

The Toronto Foundry and Machine Company of Toronto, Ohio, was represented by Elmer W. and Ralph N. Francy, Edward Harmes and E. H. Thayer. They welcomed the delegates in their room, number 1611 where were exhibited framed wash drawings of their wet and dry pans, blue prints of duplicate installation of wet pans, sewer pipe press, dry pan and trucks and photographs of trucks, mine cars and barrows. They were well satisfied with the convention business and look forward to 1919 being the best in the history of the company.

N.B.M.A.
SECRETARY'S HEADQUARTERS ROOM 570
AMERICAN CERAMIC SOCIETY
SECRETARY'S HEADQUARTERS FT. PITT HOTEL
NATIONAL PAVING BRICK MFR'S. ASS'N.
SECRETARY'S HEADQUARTERS ROOM 35
NAT'L CLAY MACHINERY MFR'S. ASS'N.
SECRETARY'S HEADQUARTERS RECEPTION ROOM
LOCAL ENTERTAINMENT COMMITTEE
SECRETARY'S HEADQUARTERS PARLOR FLOOR
FIRST SESSION WED 2:00 P.M. 17th FLOOR
SMOKERETTE WED 7:00 P.M.
BANQUET THURS. 7:00 P.M.
EXHIBITORS' DIRECTORY
THIS BULLETIN THE GIFT OF
The HOOSIER ENTERTAINMENT COMMITTEE
INDIANAPOLIS, FEBRUARY, 1918.

The N. B. M. A. Bulletin. The Gift of the Hoosier Entertainment Committee.

The Brown Instrument Co., Philadelphia, Pa., as usual had an interesting exhibit of their indicating and recording pyrometers, thermometers and pressure gauges. The recording pyrometer was hooked up to an electric furnace and temperatures were recorded as under usual working conditions so that delegates who visited their room 1658, could secure a splendid idea of the merits and advantages and use of this in actual clay plant practice. Quite a variety of instruments were displayed as were also samples showing arrangements of thermo couples with various protecting tubes for different methods of installation. Photographs of installations on plants adorned the wall. The representatives, George W. Keller and E. C. Schneider, were well satisfied with the business secured and the prospects for 1919.

The Scandinavia Belting Company was represented by E. W. Kingsbury and A. K. Kinley. Both reported good sales for their belting.

Harry Webster of Covington, Ky., who has placed on the market a number of his own inventions in continuous down draft and muffle kilns, spent a very busy week. He kept open house in his headquarters room, 134, where he exhibited a splendid model of his kiln which demonstrated the fact that this type can be used not only as a continuous kiln but periodical and muffle as well by the simple method of changing course of heat and firing. As explained in literature distributed, each chamber being self-contained, the fires can be connected with the preceding chamber at will, burning any kind of clay products, glazed ware and pottery. It can be burned muffle, up or down draft, fired from top, sides, bottom or ends. This is worthy of careful investigation and consideration. He has four different types of continuous kilns, top fire only, combined burner and dryer, continuous down draft and continuous muffle.

H. J. Votaw.

George J. Potts.

A. R. Root.

Robert A. Whiston.

Phillips and McLaren Company of Pittsburgh, noted for their high grade pans, entertained several delegations at their factory and found the week well taken up with convention work and the parts they played on the local entertainment committee. They are experts in the glad hand art.

The Thew Steam Shovel Company, of Lorain, O., was represented by genial, hale fellows, well met, D. D. Deeds, A. J. Bright and H. A. Hutchins. Judging from the spirit shown by these gentlemen the Thew Company is getting its full share of business. Mr. Deeds was one of the boosters who devoted a good part of his time to the convention sessions.

The Veritas Firing System was represented by the Forester Brothers who divided their time between the Ft. Pitt, where the American Ceramic Society sessions were being held, and the William Penn.

Chas. Engelhard, New York, who is known to the trade through the Heraeus Le Chatelier, the ultimate pyrometers, had an attractive exhibit of their products in room 1656. E. S. Newcomb and W. G. Robbins represented the company.

The International Clay Machinery Company had a most interesting display in their headquarters room 1602. This consisted of models of their continuous kiln, and gas fired kiln, working model of their Berg Dry Press, model of their dry pan step, their roller bearing for cars, also rail clamp. Literature and blue prints of their producer gas fired kilns and dryers and various new features along clayworking line and gas producers were on hand. The delegates R. W. McElroy, F. Elliott, S. E. Cullom, Chas. Parks and E. J. Anderle, welcomed the visitors and handed out a splendid souvenir, a bronze letter opener.

The Stevenson Company had a live delegation of representatives in Thomas A. Hibbin, W. G. Stevenson, Martin T. Abbott, E. W. Dow, L. G. Aughinbaugh and L. M. Thomas. They held forth in room 1607 where were exhibited drawings and literature on their new line of pans and crushers and their complete line of clayworking machinery. Their bulletin on Policy and Designing seemed to appeal strongly to the visitors. If you have not secured one of them and are contemplating changing or enlarging your grinding department, we would advise you to write them for this and other bulletins. The Stevenson leather pocket-book was a most acceptable souvenir and their balloons used to liven up the Smokerette, made quite a hit. The business outlook, according to Mr. Hibbin, is fine.

The Minter System received quite a number of inquiries which were answered in person by Mr. Minter, himself, who brought with him from Albany, Ga., drawings of his continuous down draft kiln system for which it is claimed that it saves 40 per cent. in fuel used, capacity required and labor.

The Roessler Hasslacher Chemical Co., New York, had that usual live wire representation, Malsch, Dittmer, Wills, Barlow and Schmitt all well known to the ceramic industry. They had their hands full representing the company at both the A. C. S. and N. B. M. A. meetings.

The Frost Manufacturing Company of Galesburg, Ill., was represented by the genial W. A. Day, who wore the smile that won't come off, not only because of the good business of the Frost Manufacturing Co., but also because his son was back safely from his services in the world war, where he won signal honors.

Chambers Bros. Company of Philadelphia, was represented by A. R. Root who holds the record with Secretary Randall of never missing an N. B. M. A. convention. This year, as in all other years, he did not fail to get his share of orders for the Chambers Bros.' excellent line of clayworking machinery.

Roy C. Bennett of the Wellington Machine Co., seemed encouraged with the conditions in the trade and stated they were still doing business at the old stand, Wellington, Ohio.

W. A. Meddick of the Lakewood Engineering Co., Cleveland, O., declared that the convention was the best for him in years. He received quite a number of orders for clay and drier cars.

The Frink Pyrometer Company of Lancaster, Ohio, had a suite of rooms 1620, 1622 and 1624 where were exhibited a fine display of indicating and recording pyrometers, draft gauges and different kinds of elements and tubes. Catalogues, literature and Frink Hints were freely distributed by the representatives F. J. and R. L. Frink, C. L. Sharp and D. D. Schurtz.

L. E. Rodgers of the L. E. Rodgers Engineering Co., celebrated this, his 25th consecutive convention, by being on the job early and late, meeting his large number of old acquaintances and telling those who inquired, the merits of the Rodgers dryers and kiln. Mr. Rodgers is a widely known waste heat dryer specialist and clay product engineer.

The C. & A. Potts Company headquarters room 110, was very popular all of convention week. There it was, that George Potts renewed old acquaintance, formed new ones and presented his clever and useful souvenirs, a filler leather covered note book and a paper weight in the shape of a mirror on the back of which appeared the pictures in colors of Marshal Foch, Gen. Diaz, Gen. Pershing and Gen. Haig and the words "we want to do business with the man on the other side, C. & A. Potts & Co., Indianapolis, Ind., Mfrs. Clay Machinery."

J. L. Buckley.

John C. Boss.

Louis W. Penfield.

The Thwing Instrument Co., of Philadelphia, exhibited recording and indicating pyrometers of special interest to clayworkers in the room 1664. C. B. Thwing and W. P. Kramer, the representatives, reported that business was very good and that the convention had brought them considerable orders. As a souvenir, they distributed an engineering hand book, a manual of much value to engineers and plant superintendents.

The Standard Dry Kiln Co., Indianapolis, famed for their "Book of Smiles" and the high grade dry kilns they have installed in scores of clay plants, was represented by W. Wirsching.

The J. D. Fate Co., Plymouth, O., had a display room, 1636, where tables lined the walls laden with catalogues and bulletins on their clayworking machinery and industrial locomotives. Blue prints of their many machines and appliances covered the walls. Davis Brown, R. Sykes, H. J. Votaw, J. F. Chambers, J. A. Root, G. G. Stein, S. Geijsbeek and Paul Teas entertained a host of friends and were kept busy handing out souvenir torpedo pencils, steel lock boxes and number buttons. The latter was a clever innovation that kept every button holder on the lookout for the twin which would win both a box of cigars. The cigars were real Havana as the writer will attest for he won a box and enjoyed the pleasure of numerous good smokes. Several failed to discover their twins for the J. D. Fate Company had twelve boxes of cigars left at the end of the week. Those who received their boxes and the numbers that won are as follows:

No. 67—R. C. Burton, Zanesville, Ohio. D. R. Potter, Clarksburg, W. Va.

No. 121—B. E. Place, Galion, Ohio. I. M. Nott, Pittsburgh, Pa.

No. 134—George M. Krick, Decatur, Ind. H. R. Gardner, Salem, Va.

No. 193—Henry Webster, Newport, Ky. W. D. Lucktenberg, Ashtabula, O.

No. 213—Robert Davison, Cleveland, O. Wm. Burgess, Toronto, Ont., Can.

No. 238—C. H. Bray, Helena, Mont. S. X. Willard, Chicago, Ill.

No. 279—Mason Chilcote, Beaver, Pa. L. G. Aughinbaugh, Wellsville, O.

No. 327—L. E. Rodgers, Chicago, Ill. W. G. Stevenson, Wellsville, O.

No. 339—Frank W. Wood, Danville, Ill. G. E. Luce, Chicago, Ill.

No. 403—Ellis Lovejoy, Columbus, O. Walter E. Hilton, Dunkirk, N. Y.

No. 404—George H. Clippert, Detroit, Mich. J. E. Randall, Indianapolis, Ind.

The Manufacturers Equipment Company, Dayton, O., represented by W. A. Sachs, I. M. Justice, E. M. Mahlmeister, J. L. Schroll, J. C. Harris and Martin S. Browne, received many inquiries concerning their Justice Radiated Heat Dryer, Underwood patented Producer Gas Fired Burning System and general line of machinery. Business with them is good and they have little time to be pessimistic. Their practical fingernail clip proved a most practical souvenir.

The Dunn Wire-Cut Lug Brick Company of Conneaut, O., was represented by F. B. Dunn and W. C. Perkins. Both came more to enjoy the convention than to boost their business although time was taken for an informal meeting of the paving brick manufacturers present.

The Philadelphia Drying Machinery Company, manufacturers of the "Hurricane Dryers" adaptable not only to the pottery trade but brick and tile as well, was represented by that well known clay worker, J. L. Buckley, who will be remembered for his paper on Cost Accounting presented before the convention while he was a manager of one of the Hydraulic Press Brick Company's plants.

The American Dressler Tunnel Kiln Company of New York City, had the most pretentious display at the convention. This was in Parlor G on the 17th floor, near the convention hall where they exhibited a very large solid clay block 12x18x24 burned in the Dressler Kiln on the plant of the Ohio Valley Clay Co., Steubenville, O. This was a very hard piece of burning and easily demonstrated the ability of their kiln to reach a high heat and maintain a uniform temperature throughout the cross section. The kiln at this plant has proven most successful, requiring seven days to burn glass tank block where formerly 16 days were required. This was to cone 11 flat. Exhibited also was a hollow building block burned in kiln at Roseville Pottery Co., Zanesville, O., burned to 2100°. This was pronounced by Rufus Burton to be perfectly burned. This was accomplished in 40 hours, half the usual burning time. Tile from the two kilns of the Mosaic Tile Co., tile from the two kilns of the American Encaustic Tile Co., Zanesville, sanitary porcelain from kiln of the Universal Sanitary Mfg. Co., New Castle, Pa., high voltage insulators from Jeffrey DeWitt Insulator Co., Huntington, W. Va., kiln and art pottery from kiln of Roseville Pottery Co., were exhibited attesting the universal adaptability of the Dressler Kiln. Photographs of all plants in which kilns were installed were shown. The company declared that they were more than pleased with the convention, securing orders for six kilns. Their representatives were Phillip Dressler, R. W. Steele, C. M. Pease, Paul A. Meehan, H. M. Robertson and Walter Kupfer.

F. F. Steele.

A Lucky Number.

Find the party with the same number as this, bring him to our room and each receive a Box of Cigars with our Compliments
404
THE J. D. FATE CO.
FATE
CLAY WORKING MACHINERY
PLYMOUTH
GASOLINE LOCOMOTIVES
PLYMOUTH, OHIO

This Won a Box of Cigars For Both President Clippert and J. E. Randall.

Frank B. Dunn.

The E. M. Freese & Co. delegation, B. E. Place, E. L. Freese, E. L. Hess and Robert Whiston, held forth in room 1607 where drawings of their clayworking machinery was on display as well as literature explaining the merits of their substantial line. Of special interest to the visitors was the drawing of their new pug mill. A leather pocket bill holder was presented to visitors.

The Arnold Craeger Company, of New London, O., represented by Frank McClellan, received its share of attention convention week. Asked in regards to business prospects, Mr. McClellan stated it could hardly be better, that they had made 26 installations of their S. S. S. Special machine and were getting numerous inquiries. The convention was most pleasing to him and to his company. Mr. John Kline of Chaska, Minn., has installed two and is going to put in another S. S. S. Special machine.

The J. C. Steel and Co., Statesville, N. C., was represented by F. F. Steele who enjoyed the convention and seemed well pleased with the trend of affairs in his section of the country.

The Bonnot Company of Canton, O., was represented by their usually smiling executive, A. A. Oldham, who says he can't complain of the business conditions and feels that 1919 and 1920 hold much prosperity in store for the clay product manufacturers of the country.

L. W. Flood, represented the Chisholm, Boyd & White Co., Chicago, manufacturers of the Boyd Brick Press was kept busy in his glad hand work.

John C. Boss Company of Elkhart, Ind., known throughout the trade, due to many installations of the Boss system of drying and burning, was represented by their president, Mr. Boss, who is also President of the Clay Machinery Manufacturers Association.

The American Truck and Body Company of Martinsville, Va., manufacturers of the Fontaine Detachable Body for handling brick or any other heavy material, on which we published an illustrated story in The Clay-Worker a year ago, was represented by R. A. Fontaine, C. W. Waller and H. S. Winn. This body should be sold extensively in the clay industry for it fits any truck and is a system that insures continual running of the auto truck, saves breakage and makes it possible for one truck to do the work of several.

The Ball Engine Company of Erie, Pa., manufacturers of the Erie Steam Shovels, was represented by P. B. Heisey. He reported business good for his company.

F. W. Dennis, Norfolk, Va., known to a large number of clay product manufacturers as the inventor and builder of the Dennis Kiln, spent a strenuous week and was well satisfied with the results.

Other firms represented were the Main Belting Co., Philadelphia Textile Machinery Co., Marion Steam Shovel Co., Hunter Dry Kiln Co., Jas. B. Crowell & Sons, J. B. Owens Tunnel Kiln Co., Union Engineering Co., Koppel Industrial Car and Equipment Co., American Equipment Co., Victor Balata Textile and Belting Co., Alphons Custodis Chimney Constr. Co., Carl H. Zwerman, Celite Co., Louisville Machine Co., and Keystone Driller Co.

NUMERICAL ROSTER N. B. M. A., PITTSBURGH, 1919

NAME. FIRM. TOWN.

1. C. P. MAYER, C. P. Mayer Brick Co., Bridgeville, Pa.
2. W. W. DICKINSON, JR., Arkansas Brick & Tile Co., Little Rock, Arkansas.
3. M. E. GREGORY, Brick & Terra Cotta Co., Corning, N. Y.
4. L. W. PENFIELD, American Clay Machinery Co., Willoughby, O.
5. CARL B. HARROP, Ohio State University, Columbus, Ohio.
6. JOHN W. SIBLEY, Birmingham Clay Products Co., Birmingham, Ala.
7. THEO. A. RANDALL, T. A. Randall & Co., Indianapolis, Ind.
8. W. D. RICHARDSON, Ceramic Supply & Const. Co., Columbus, Ohio.
9. A. R. ROOT, Chambers Bros. Co., Philadelphia, Pa.
10. O. M. RAGSDALE, Hunter Dry Kiln Co., Indianapolis, Ind.
11. J. E. RANDALL, The Clay-Worker, Indianapolis, Ind.
12. C. H. TREUSCH, Denver Sewer Pipe & Clay Co., Denver, Colo.
13. W. A. DAY, The Frost Mfg. Co., Chicago, Ill.
16. F. H. CARTER, Peoria Brick & Tile Co., Peoria, Ill.
14. J. C. ROBINSON, Clay Products Corporation, Hampton, Va.
15. EDWIN F. KNIGHT, A. S. Reid & Co., Newark, N. Y.
16. F. R. CARTER, Peoria Brick & Tile Co., Peoria, Ill.
17. J. T. HAWTHORNE, Phila. Vit. Brick Co., Philadelphia, Pa.
18. ALBERT R. STUETZ, Phila. Vit. Brick Co., Philadelphia, Pa.
19. S. C. LINBARGER, Carborundum Co., Niagara Falls, N. Y.
20. FRANK CERMAK, General Electric Co., Schenectady, N. Y.
21. CHESTER TREISCHEL, General Electric Co., Schenectady, N. Y.
22. CHESTER L. SHARP, Frink Pyrometer Co., Lancaster, Ohio.
23. F. K. MINOR, Celite Products Co., Pittsburgh, Pa.
24. ELMER N. FRANCY, Toronto Fdy. & Mch. Co., Toronto, O.
25. C. W. JOSLIN, Conneaut Shovel Co., Conneaut, Ohio.
26. GEO. W. KELLER, Brown Instrument Co., Philadelphia, Pa.
27. HENRY J. F. SUDEMAN, Fiske & Co., Pittsburgh, Pa.
28. BAYARD PHILLIPS, Phillips & McLaren, Pittsburgh, Pa.
29. C. B. SHARER, American Clay Machinery Co., Bucyrus, O.
30. C. M. MAYER, C. P. Mayer Brick Co., Bridgeville, Pa.
31. DOUGLAS F. STEVENS, Acme Brick Co., Danville, Ill.
32. J. P. CALLAGHAN, Sharon Clay Products Co., Sharon, Pa.
33. THOMAS M. WILSON, Brick & Clay Eng. Co., Pittsburgh, Pa.
34. F. W. PRICE, Building Dept., Toronto, Ont., Canada.
35. GUS M. TUCKER, Robinson Clay Products Co., Akron, Ohio.
36. W. E. ROBINSON, Robinson Clay Products Co., Akron, Ohio.
37. GEO. W. SHOEMAKER, Mohawk Clay Products Co., Perrysville, Ohio.
38. THOMAS M. SANT, John Sant & Sons Co., East Liverpool, O.
39. J. W. WARD, Pittsburgh High Voltage Ins. Co., Latrobe, Pa.
40. A. J. BRIGHT, The Thew Automatic Shovel Co., Lorain, O.
41. T. B. FREEMAN, Hay-Walker Brick Co.. Pittsburgh, Pa.
42. A. Q. STARR, Wynn & Starr, Trafford, Pa.
43. R. B. GILMORE, Vesuvius Crucible Co., Cleveland, Ohio.
44. ROSS C. PURDY, Norton Co., Worcester, Mass.
45. R. W. McELROY, International Clay Mach. Co., Dayton, Ohio.
46. FRANK ELLIOTT, International Clay Mach. Co., Dayton, O.
47. S. E. CULLOM, International Clay Mach. Co., Dayton, O.
48. CHAS. PARKS, International Clay Mach. Co., Dayton, O.
49. HARRY D. CALLAHAN, Ohio State University, Columbus, O.
50. HARRY E. DAVIS, Ohio State University, Columbus, Ohio.
51. E. KENNETH KOOS, Ohio State University, Columbus, O.
52. J. A. BLAIR, Kushequa Brick Co., Kushequa, Pa.
53. RAYMOND M. HOWE, Mellon Institute, Pittsburgh, Pa.
54. F. W. DONAHOE, Refractories Mfrs. Assn., Pittsburgh, Pa.
55. C. J. WEBER, National Brick Co., Chicago, Ill.
56. JOHN L. RICE, Vitrified Pipe Mfrs. Assn., Akron, Ohio.
57. T. E. WILSON, Pittsburgh Clay Prod. Co., Pittsburgh, Pa.
58. HENRY WEBSTER, Newport, Ky.
59. JOTHAM POST, East Williston, L. I., N. Y.
60. THOMAS A. HIBBINS, The Stevenson Co., Wellsville, Ohio.
61. WILL P. BLAIR, Nat. Pav. Brick Mfg. Assn., Cleveland, O.
62. E. S. NEWCOMB, Chas. Engelhard Co., New York, N. Y.
63. WM. G. ROBBINS, Chas. Engelhard Co., New York, N. Y.
64. GEORGE J. POTTS, C. & A. Potts & Co., Indianapolis, Ind.
65. R. C. BENNETT, Wellington Machinery Co., Wellington, O.
66. LAMBERT HAIGH, American Clay Machinery Co., Bucyrus, Ohio.
67. H. WIRSCHING, Standard Dry Kiln Co., Dayton, Ohio.
68. H. C. KLEYMEYER, Standard Brick Co., Evansville, Ind.
69. HERBERT GOODWIN, Salem China Co., East Liverpool, O.
70. D. D. DEEDS, Thew Automatic Shovel Co., Lorain, Ohio.
71. C. B. THWING, Thwing Instrument Co., Philadelphia, Pa.
72. W. P. KARNER, Thwing Instrument Co., Pittsburgh, Pa.
73. C. E. JACKSON, Warwick China Co., Wheeling, W. Va.
74. CHAS. A. LANO, Borden Brick & Tile Co., Goldsboro, N. C.
75. L. E. RODGERS, L. E. Rodgers Engineering Co., Chicago, Ill.
76. GEORGE CLIPPERT, Clippert Bros. Brick Co. Detroit, Mich.
77. A. J. DUNN, Chase Foundry & Mfg. Co., Columbus, Ohio.
78. DAVIS BROWN, The J. D. Fate Co., Plymouth, Ohio.
79. W. MALSCH, Roessler-Hasslacher Chem. Co., New York, N. Y.
80. C. DITTMER, Roessler-Hasslacher Chem. Co., Cincinnati, O.
81. H. SCHMITT, Roessler-Hasslacher Chem. Co., New York, N. Y.
82. S. T. JOHNSTON, The S. Obermayer Co., Chicago, Ill.
83. WM. BURGESS, Don Valley Brick Works, Toronto Ont., Can.
84. CHAS. A. MILLAR, Prices Limited, Toronto, Ont., Canada.
85. A. F. GREAVES-WALKER, Am. Ref. Co., Baltimore, Md.
86. M. W. BLAIR, Thornton Fire Brick Co., Thornton, W. Va.
87. GEO. E. THOMAS, Highland Fire Clay Co., St. Louis, Mo.
88. J. W. ROBB, Clinton Paving Brick Co., Clinton, Ind.
89. R. G. EISENHART, Consolidated Brick Co., Horseheads, N. Y.
90. H. FORESTER, Veritas Firing System Co., Cleveland, O.
91. W. H. HILL, Freeport Clay Prod. & Mineral Co., Freeport, Pa.
92. EDWARD HARMES, Toronto Fdy. & Mach. Co., Toronto, O.
93. F. B. DUNN, Dunn Wire Cut Lug Brick Co., Conneaut, Ohio.
94. W. C. PERKINS, Dunn W. C. L. Brick Co., Conneaut, O.
95. W. H. SACHS, Manufacturers Equipment Co., Dayton, Ohio.
96. I. M. JUSTICE, Manufacturers Equipment Co., Dayton, Ohio.
97. E. M. MAHLMEISTER, Manufacturers Equipment Co., Dayton, O.
98. J. L. SHROLL, Manufacturers Equipment Co., Dayton, Ohio.
99. P. B. HEISEY, Ball Engine Co., Dayton, Ohio.
100. GRANT DIBERT, Iron City B. & Stone Co., Pittsburgh, Pa.
101. R. O. KEISER, Phila. Textile Machine Co., Philadelphia, Pa.
102. ADDISON CROWELL, Jas. B. Crowell & Son, Walkill, N. Y.
103. L. E. BARRINGER, General Electric Co., Schenectady, N. Y.
104. A. V. BLEININGER, U. S. Bur. of Standards, Pittsburgh, Pa.
105. GEORGE H. BROWN, Rutgers College, New Brunswick, N. J.
106. W. W. ITTNER, Belleville B. & T. Co., Belleville, Ill.
107. H. STEPHANI, O. W. Ketcham T. C. Works, Philadelphia, Pa.
108. M. E. GATES, Am. Terra Cotta Co., Chicago, Ill.
109. C. W. PARMELEE, University of Illinois, Urbana, Ill.
110. L. H. COLE, Mines Branch Dept. Mines, Ottawa, Can.
111. H. RIES, Cornell University, Ithaca, N. Y.
112. R. T. STULL, U. S. Bureau of Mines, Columbus, Ohio.
113. JOS. K. MOORE, Captain U. S. Army, Indianapolis, Ind.
114. F. K. PENCE, Am. Encaustic Tiling Co., Zanesville, Ohio.
115. J. D. WHITMER, Am. Encaustic Tiling Co., Zanesville, Ohio.
116. ARTHUR S. WATTS, Ohio State University, Columbus, O.
117. CHAS. F. BINNS, Alfred College, Alfred, N. Y.
118. WALDO A. TITSWORTH, Alfred College, Alfred, N. Y.
119. A. F. HOTTINGER, Northwestern T. C. Co., Chicago, Ill.
120. H. A. PLUSCH, Abrasive Co., Philadelphia, Pa.
121. H. W. MOORE, Atlantic T. C. Co., Perth Amboy, N. J.
122. F. H. RIDDLE, U. S. Bureau of Standards, Pittsburgh, Pa,
123. P. DRESSLER, Am. Dressler Tunnel Kilns, Zanesville, O.
124. F. H. RHEAD, Am. Encaustic Tiling Co., Zanesville, O.
125. FREDERICK CARDER, Steuben Glass Works, Corning, N. Y.
126. E. T. MONTGOMERY, Jeffrey Dewitt Co., Detroit, Mich.
127. F. W. WALKER, Beaver Falls Art Tile Co., Beaver Falls, Pa.
128. R. A. BURNS, Laclede-Christy, St. Louis, Mo.
129. R. L. FRINK, Frink Pyrometer Co., Lancaster, Ohio.
130. C. W. BERRY, Laclede Christy, St. Louis, Mo.
131. C. H. BRAY, Western Clay Mfg. Co., Helena, Mont.
132. W. F. ROCHOW, Harbison-Walker Ref. Co., Pittsburgh, Pa.
133. ROBT. H. PIERCE, Harbison-Walker Ref. Co., Pittsburgh, Pa.
134. CHAS. F. GEIGER, Chicago, Ill.
135. JOHN T. HUMMERT, Gem City Brick Co., Quincy, Ill.
136. HENRY J. VOTAW, The J. D. Fate Co., Plymouth, Ohio.
137. J. F. CHAMBERS, The J. D. Fate Co., Crestline, Ohio.
138. JOHN F. LENT, Lent Traffic Co., Pittsburgh, Pa.
139. J. C. HARRIS, Manufacturers Equipment Co., Dayton, Ohio.
140. C. R. VAN ORMER, Pitts. Callery Brick Co., Pittsburgh, Pa.
141. R. W. STEELE, Am. Dressler Tunnel Kilns, New York, N. Y.
142. D. A. MOULTON, McLain Fire Brick Co., Wellsville, Ohio.
143. C. L. RORICK, Permanent Buildings Society, Chicago, Ill.
144. P. A. MEEHAN, Am. Dressler Tunnel Kilns, New Castle, Pa.

NAME. FIRM. TOWN.

145. H. M. ROBERTSON, Am. Dressler Tunnel Kilns, New York, N. Y.
146. C. M. PEASE, Am. Dressler Tunnel Kilns, New York, N. Y.
147. E. G. ZORN, Brick & Clay Record, Chicago, Ill.
148. W. S. KUPFER, Am. Dressler Kilns, New York, N. Y.
149. C. E. LIN, Ohio State University, Columbus, Ohio.
150. SHEN HUNG, Ohio State University, Columbus, Ohio.
151. SHU-YUNG LIN, Ohio State University, Columbus, Ohio.
152. B. E. PLACE, E. M. Freese & Co., Galion, Ohio.
153. H. FREESE, E. M. Freese & Co., Galion, O.
154. H. B. LOVELAND, Ellicott Brick Co., Jewettville, N. Y.
155. E. L. HESS, E. M. Freese & Co., Galion, Ohio.
156. ROBT. A. WHISTON, E. M. Freese & Co., East Orange, N. J.
157. H. R. SAVAGE, Norton Co., Worcester, Mass
158. J. E. POOLE, Harbison-Walker Ref. Co., Pittsburgh, Pa.
159. C. B. TOWN, Harbison-Walker Ref. Co., Pittsburgh, Pa.
160. L. D. WALRATH, Acme Shale Brick Co., Buffalo, N. Y.
161. E. A. BOOTH, Main Belting Co., Pittsburgh, Pa.
162. F. McCLELLAN, The Arnold-Creagor Co., New London, O.
163. GEO. M. KRICK, Krick Tyndall & Co., Decatur, Ind.
164. E. STEVENS, Bippus Tile Co., Bippus, Ind.
165. J. C. BOSS, J. C. Boss Co., Elkhart, Ind.
166. P. E. MONROE, P. L. Monroe & Co., Providence, R. I.
167. L. M. JOHNSON, Adams Clay Prod., Co., Martinsville, Ind.
168. R. K. MOSSER, Lehigh Brick Works, Allentown, Pa.
169. H. R. GARDEN, Salem Brick Co., Salem, Va.
170. A. S. CUNNINGHAM, Lehigh Brick Works, Allentown, Pa.
171. D. WARREN DeROSAY, Corry Brick & Tile Co., Corry, Pa.
172. R. GUY COWAN, Cleveland, Ohio.
173. H. A. HUTCHINS, The Thew Automatic Shovel Co., Lorain, O.
175. F. W. DENNIS, Norfolk, Va.
176. GEO. O. BERRY, Columbus, Ga.
177. J. H. MILLER, Wash. Brick & T. C. Co., Washington, D. C.
178. W. H. HAMPTON, Wash. Br. & T. C. Co., Washington, D. C.
179. HERMAN L. MATZ, S. S. Kimbell Brick Co., Chicago, Ill.
180. SAM. GEIJSBEEK, Geijsbeek Engineering Co., Portland, Ore.
181. L. B. STOCKWELL, Am. Clay Machinery Co., Willoughby, O.
182. E. J. KING, American Clay Machinery Co., Willoughby, Ohio.
183. J. A. PENFIELD, Am. Clay Machinery Co., Willoughby, O.
184. J. M. SMITT, Louisville Mach. Co., Louisville, Ohio.
185. W. C. ALWINE, Alwine Bros. Brick Co., New Oxford, Pa.
186. ELTON BRADDOCK, Somers Brick Co., Atlantic City, N. J.
187. HUBERT SOMERS, Somers Brick Co., Atlantic City, N. J.
188. Wm. K. HAMMOND, 628 West 52nd St., New York, N. Y.
189. B. W. BALLOU, Kansas Buff Brk. & Mfg. Co., Buffville, Kans.
190. ELTON BRADDOCK, Jr., Sommers Brk. Co., Atlantic City, N. J.
191. F. L. REPPERT, Perry Mfg. Co., Uniontown, Pa.
192. C. J. WELSH, The Conneaut Shovel Co., Conneaut, O.
193. F. L. STOWELL, Sterling Brick Co., Olean, N. Y.
194. H. H. OBERLY, Jas. B. Oberly Co., Wilmington, Dela.
195. WM. CONWAY, Jr., William Conway Co., Philadelphia, Pa.
196. F. F. STEELE, J. C. Steele & Sons, Statesville, N. C.
197. W. A. MEDDICK, Lakewood Eng. Co., Cleveland, O.
198. A. A. OLDHAM, The Bonnot Co., Canton, O.
199. H. H. STAFFORD, Georgia-Carolina Brick Co., Augusta, Ga.
200. A. V. STURGEON, Nansemond Brick Cor., Suffolk, Va.
201. W. E. DUNWODY, Standard Brick Co., Macon, Ga.
202. K. W. DUNWODY, Standard Brick Co., Macon, Ga.
203. R. A. FONTAINE, Am. Truck Body Co., Martinsville, Va.
204. C. W. WALLER, Am. Truck Body Co., Martinsville, Va.
205. H. S. WINN, American Truck Body Co., Martinsville, Va.
206 E. W. KINGSBURG, Scandinavia Belting Co., Cleveland, O.
207. A. K. KINLEY, Scandinavia Belting Co., Cleveland, Ohio.
208. C. J. CLIPPERT, G. H. Clippert Bros. Brk Co., Detroit, Mich..
209. C. F. CLIPPERT, G. H. Clippert Bros. Brk. Co., Detroit, Mich.
210. W. L. JOHNSON, Morgantown Brick Co., Morgantown, W. Va.
211. J. M. BEVILLE, Barkwill-Farr Co., Cleveland, Ohio.
212. ROBERT J. DAWSON, Barkwell-Farr Co., Cleveland, Ohio.
213. JAMES L. LATHAM, Wynn & Starr Co., Mars, Pa.
214. J. E. KOPF, Architect, Indianapolis, Ind.
215. C. H. BRYAN, Mercier, Bryan, Larkins B. Co., Detroit, Mich.
216. J. A. MERCIER, Mercier, Bryan, Larkins B. Co., Detroit, Mich.
217. W. H. IRONS, Colfax Brick Co., Colfax, W. Va.
218. J. L. BUCKLEY. Phila. Drying Mach. Co., Philadelphia, Pa.
219. EDWIN J. EVANS, Mitchell Brick Co., Delhi, Ohio.
220. M. S. BROWNE, Manufacturers Equipment Co., Dayton, O.
221. WILLIAM SCHLAKE, Illinois Brick Co., Chicago, Ill.
222. F. R. McCANNELL, Pressed Brick Co., Milton, Ont., Can.
223. H. J. FLOOD, Chisholm, Boyd & White, Chicago, Ill.
224. L. W. FLOOD, Chisholm, Boyd & White, Chicago, Ill.

NAME. FIRM. TOWN.

225. C. J. NEWMAN, A. Custodis Ch'y Con. Co., New York, N. Y.
226. J. W. PATTERSON, Marion Steam Shovel Co., Marion, O.
227. J. S. WEAVER, Marion Steam Shovel Co., Marion, Ohio.
228. B. S. RADCLIFFE, Midland Terra Cotta Co., Chicago, Ill.
229. I. E. BROWN, American Clay Machinery Co., Bucyrus, Ohio.
230. H. R. SYKES, The J. D. Fate Co., Plymouth, Ohio.
231. GEO. G. STEIN, The J. D. Fate Co., Plymouth, Ohio.
232. R. W. GREENE, Kentucky Const. & Impr. Co., Mayfield, Ky.
233. PAUL TEAS. The J. D. Fate Co., Plymouth, O.
234. J. P. MARTIN, American Clay Machinery Co., Lancaster, Pa.
235. ANDREW LANZ, M. Lanz & Sons, Pittsburgh, Pa.
236. R. C. BURTON, The Burton-Townsend Co., Zanesville, O.
237. M. M. MINTER, Flint River Brick Co., Albany, Ga.
238. G. L. CLAPPER, Brown Instrument Co., Philadelphia, Pa.
239. J. B. WILCOX, The Alliance Clay Prod. Co., Alliance, O.
240. E. P. OGDEN, J. B. Owens Cont. Kiln Co., Zanesville, O.
241. H. E. NICHOLS, Main Belting Co., Pittsburgh, Pa.
242. S. M. BROWN, Main Belting Co., Philadelphia, Pa.
243. D. J. STRICKLAND, Union Eng. Co., Cleveland, Ohio.
244. W. E. KEARFELT, Williamson & Hedgcock, Martinsville, W. Va.
245. D. W. A. MOORE, Nat'l Industrial Speakers Bureau, Detroit, Mich.
246. A. W. KROUSE, Sharon Clay Products Co., Sharon, Pa.
247. T. H. CHEW, Glenview Brick Co., Clarksburg, W. Va.
248. H. W. W. REDMAN, Koppel Indst. Car & Equip. Co., Pittsburgh, Pa.
249. L. G. VAN ORMER, Van Ormer Brick Co., Pitcairn, Pa.
250. DR. C. L. E. CARTWRIGHT, Pittsburgh, Pa.
251. T. MONROE DOBBINS, Camden Pottery, Camden, N. J.
252. CHARLES J. HUDSON, Norton Co., Worcester, Mass.
253. A. T. MALM, Norton Co., Worcester, Mass.
254. W. F. SOISSON, J. Soisson Fire Brick Co., Connellsville, Pa.
255. C. WEIGEL, Hebron Fire & Pressed Br. Co., Hebron, N. D.
256. R. W. OSWALD, Scandinavia Belting Co., Pittsburgh, Pa.
257. H. D. CALLAHAN, Ohio State University, Columbus, O.
258. H. E. REEB, Ohio State University, Columbus, O.
259. ENOS M. JONES, Altoona Brick Co., Altoona, Pa.
260. W. J. PHILLIPS, Phillips & McLaren Co., Pittsburgh, Pa.
261. S. H. McLAREN, Phillips & McLaren Co., Pittsburgh, Pa.
262. ELLIS LOVEJOY, Columbus, O.
263. O. W. WILL, Roessler & Hasslacher, Chem. Co., Perth Amboy, N. J.
264. L. E. SHAW, Avonport, Nova Scotia.
265. G. BARLOW, Roessler & Hasslacher Chem. Co., East Liverpool, O.
266. W. E. HILTON, Dunkirk Br. & Tile Co., Dunkirk, N. Y.
267. A. L. BOWEN, The Burton-Townsend Co., Zanesville, O.
268. D. LUCHTENBERG, The Burton-Townsend Co., Ashtabula, O.
269. H. R. BEEGLE, Beaver Clay Mfg. Co., New Galilee, Pa.
270. J. H. RUBY, Barkwell Farr, Cleveland, O.
271. EDW. W. DOW, Stevenson Co., Pittsburgh, Pa.
272. A. J. AUBREY, Youngstown, O.
273. F. A. IERLAN, American Clay Mach. Co., Willoughby, O.
274. JAS. E. DUNCAN, JR., Donley Brick Co., Washington, Pa.
275. J. A. ROOT, The J. D. Fate Co., Plymouth, O.
276. L. B. HUMPHREY, Humphrey Br. & Tile Co., Brickville, Pa.
277. F. SHENKLE, The Fed. Clay Prod. Co., Mineral City, O.
278. P. J. LAUBECHER, Darlington Br. & Mining Co., New Galilee, Pa.
279. LEWELLYN BELL, Pittsburgh, Pa.
280. MASON CHILCOTE, McLain Fire Brick Co., Beaver, Pa.
281. W. G. STEVENSON, The Stevenson Co., Chicago, Ill.
282. H. T. WYNN, Wynn & Starr Co., Trafford, Pa.
283. J. CROW TAYLOR, Ky. Clay Prod. Assn., Louisville, Ky.
284. C. E. FULTON, Pitts. Plate Glass Co., Pittsburgh, Pa.
285. R. J. MONTGOMERY, Bausch & Lomb Optical Co., Rochester, N. Y.
286. A. STAUDT, Perth Amboy Tile Wks., Perth Amboy, N. J.
287. R. L. CLARE, Federal Terra Cotta Co., Woodbridge, N. J.
288. W. CANNAN, Jr., Onondaga Pottery Co., Syracuse, N. Y.
289. J. P. SHULL, Butler, Pa.
290. E. E. F. CREIGHTON, Gen. Elec. Co., Schenectady, N. Y.
291. H. A. TRUBY, Pitts. Plate Glass Co., New Kensington, Pa.
292. GEO. HAAF, Pass & Seymour, Pittsburgh, Pa.
293. C. F. TEFFT, Darlington Clay Prod. Co., Darlington, Pa.
294. CONALD W. ROSS, Findlay Clay Pot. Co., Washington, Pa.
295. G. E. LUCE, Amer. Equipment Co., Chicago, Ill.
296. H. F. KEMPER, Beaver Clay Mfg. Co., New Galilee, Pa.
297. J. B. DAVIS, S. S. White Dental Mfg. Co., Philadelphia, Pa.
298. G. K. ANDERSON, Philadelphia, Pa.

NAME. FIRM. TOWN.

299. M. T. ABBOTT, The Stevenson Co., Wellsville. O.
300. A. L. TREUSCH, J. Loughlin, Pittsburgh, Pa.
301. D. B. POTTER, Thornton Fire Brick Co., Thornton, W. Va.
302. C. H. STONE, Jr., The Jas. H. Herron Co., Cleveland, O.
303. JOHN J. ENTRESS, Entress Brick Co., Pittsburgh, Pa.
304. J. FRED SMITH, Smith Brick Co., Omaha, Neb.
305. A. HANSEN, Ford's Porcelain Works, Perth Amboy, N. J.
306. I. C. VAN ORMER, Van Ormer Brick Co., Trafford, Pa.
307. FRANK W. WOOD, Danville Brick Co., Danville, Ill.
308. J. PARKER B. FISKE, New York, N. Y.
309. WM. H. SHEARMAN, New Jersey Zinc Co., New York, N. Y.
310. H. L. McNEES, Kittanning Ceramics Co., Kittanning, Pa.
311. RUDOLPH P. MILLER, New York City.
312. DR. S. W. STRATTON, U. S. Bureau of Standards, Washington, D. C.
313. NICHOLAS VANDERPYL, Washington, D. C.
314. P. H. BATES, Bureau of Standards, Pittsburgh, Pa.
315. WALTER PURSELL, Pursell Co., Cincinnati O.
316. MATT S. SHINER, Supt. Bldg., Kansas City, Mo.
317. GEO. E. RENDIGS, Com. of Bldgs., Cincinnati, O.
318. H. G. LOVE, Dominion F. B. & Clay Prod., Moosejaw, Sask., Can.
319. WM. O'DAY, Dominion F. B. & Clay Prod., Moosejaw, Sask., Can.
320. W. R. HILTON, Hoag & Gallaher Co., Kittanning, Pa.
321. A. A. VANCLEAVE, Grand View Fire Clay Mines, St. Louis, Mo.
322. C. B. STOWE, Stowe Fuller Co., Cleveland, O.
323. R. K. HURSH, University of Illinois, Urbana, Ill.
324. H. S. BRIGHTLY, War Service Com. on Hollow Bldg. Tile, Washington, D. C.
325. JNO. A. FERGUSON, Bldg. Code Com., Pittsburgh, Pa.
326. R. T. STULL, U. S. Bureau of Mines, Columbus, O.
327. F. N. SHANKLAND, Am. Clay Machinery Co., Willoughby, O.
328. J. H. ROBINSON, Standard Stone Brick Co., Bellaire, O.
329. W. J. CARMICHAEL, Am. Clay Mach. Co., Willoughby, O.
330. S. B. DOBBS, S. B. Dobbs, Philadelphia, Pa.

NAME. FIRM. TOWN.

331. D. B. FRAZIER, Philadelphia, Pa.
332. J. WALKER WILSON, Keystone Driller Co., Beaver Falls, Pa.
333. J. VALE DOWNIE, Keystone Driller Co., Beaver Falls, Pa.
334. W. J. WARD, John H. Ward & Sons Co., Wilkinsburg, Pa.
335. D. CARGILL WARD, John H. Ward & Sons Co., Pittsburgh, Pa.
336. FRANK THAYER, Pittsburgh Callery Brick Co., Callery, Pa.
337. S. X. WILLARD, Biery Oil Co., Franklin, Pa.
338. R. D. LANDRUM, Harshaw Fuller & Goodwin, Cleveland, O.
339. A. M. COBBE, A. M. Cobbe, B. & T. Co., Jamestown, N. Y.
340. J. B. COEN, Homstead Brick Co., Homestead, Pa.
341. T. L. STEVENSON, Stowe Fuller Co., Cleveland, O.
342. M. CARDER, Corning Glass Co., Corning, N. Y.
343. TOM W. GREEN, Tom Green Brick Co., Sioux City, Ia.
344. W. H. FULWEILER, Philadelphia, Pa.
345. H. K. JOHNSON, Victor Balalta Textile & Belt Co., Easton, Pa.
346. J. W. ALEXANDER, Aspromet Co., Pittsburgh, Pa.
347. C. A. GARDNER, New York, N. Y.
348. P. A. SMITH, A. F. Smith & Co., New Brighton, Pa.
349. R. O. PERROTT, Amer. Clay Machinery Co., Bucyrus, O.
350. WM. P. O'ROURKE, Supt. of Buildings, Newark, N. J.
351. W. EDWIN GLOSSOP, Inspector of Buildings, Louisville, Ky.
352. JOHN W. MOORE, Supt. of Buildings, Long Island City, N. Y.
353. ALBERT E. KLEINERT, Supt. of Bldgs., New York, N. Y.
354. ED. T. LANDERS, Marietta Shale Brick Co., Marietta, O.
355. S. A. DIES, City of Pittsburgh, Pittsburgh, Pa.
356. WALTER R. FORBUSH, City of Newton, Newton, Mass.
357. T. MARTIN, Martin Brick Co., New Kensington, Pa.
358. DANIEL P. DUNDON, City of Erie, Pa., City Hall, Erie, Pa.
359. FRED W. LUMIS, Bldg. Commissioner, Springfield, Mass.
360. TYRRELL B. SHERTZER, Lime Association, New York, N. Y.
361. WM. W. HARTLOVE, A. G. Zummerman, Archt., Pitts., Pa.
40 Buttons issued to the visiting ladies.
401 Total Registered Attendance.

GOVERNMENT TO SELL EXCESS BUILDING MATERIAL

Great Quantities of Brick, Steel, Cement and Timber Beyond Present Needs will be Sold by War Department.

Building materials which the War Department now holds in excess of its present needs and which will be offered for sale in the near future include:

Brick, 14,516,000; hollow tile, 2,235,403 pieces; lumber, veneers and plywood, 350,000,000 feet; cement, 115,523 barrels; lime, 77,560 barrels; flue linings, 29,226 linear feet; metal lath, 1,122,313 square feet; wood lath, 2,695,000; wallboard (all kinds), 5,406,429; roofing, 202,208 rolls; building papers, 52,377 rolls; nails (assorted sizes), 159,622 kegs; reinforcing steel, 3,000 tons; sewer pipe (assorted sizes), 577,407 linear feet; wood shingles, 908,000.

The United States Government is planning to furnish supplies to builders. This does not mean that the government is to compete for the building material business, which is going to be gigantic when reconstruction is in full swing. The government has been a great customer during the last two years. It has bought in every market and to the extent of monopolizing the output. Building manufacturers have been working for the government and for no one else during these years. The Washington authorities are not going to repudiate contracts made in the feverish rush of war-time business, because of the disastrous effect this would have on the manufacturer and the contractor. The supplies are to be accepted and later returned to the market to be disposed of at market prices.

The War Department proved to be a great building concern and made contracts for large supplies of every kind of building material. This material has been coming into the concentration points named by the government. When the flow has stopped, or, rather, just so soon as the War Department has decided the time has come for placing this surplus material on the market, announcement will be made by the director of sales and builders will be asked to patronize the government.

The War Department had planned for a long war. It was the kind of planning that was safest, and accordingly purchases were fitted to these plans.

The war is over and the urgency of building material is likewise at an end. The War Department finds it has a great quantity of bricks and nails and steel and timber on hand, supplies far in excess of the peace-time needs of the army. This amount will be increased until all outstanding contracts have been filled.

Estimates made by C. W. Hare, director of sales, of the surplus materials on the hands of the War Department are as nearly correct as it is possible to have them at this time. Mr. Hare says that the totals, which are printed above, cannot contain an error larger than 25 per cent.

The totals are astonishing, since they show millions of feet of timber, hundreds of thousands of barrels of cement, tons and tons of steel.

Director Hare is of the opinion that the placing of these supplies on the market would not inconvenience trade. The demand for material is sufficient to consume the government's surplus and the output of manufacturers, too. With reconstruction in full swing the need of material will be greatly increased.

Written for THE CLAY-WORKER.

CINCINNATI BRICK AND BUILDING NEWS.

WHILE there has not as yet been much actual evidence of any notable revival in the building situation, at least the increased agitation proves that there is an effort being made to arouse a greater interest in the subject. That this will result in something of a tangible nature it is most assuredly hoped. The questions of both high cost of materials and labor are giving the public something to think about these days and while there has no doubt been a little reduction in the latter element, the former still holds its customary strength. Nor does it appear even probable that the prices are going to show any decline for a number of months.

The weather has been very favorable for outdoor work, and were the conditions with regard to the materials markets better it is more than a guess to say that there would be a large amount of building under way. Still it seems to be the impression that there will be a revival before many weeks longer, but what this will amount to cannot be stated now.

While the number of building permits issued here in the month of January were larger in number than they were last Januuary, still the amount of money invested in this way was considerably less. The figures for the past month are: 586 permits representing an outlay of $150,260 and for the month of January 1918, the number of permits issued was 516, costing $781,895. In the same month for 1917 there were 883 permits issued that amounted to $609,105.

Herman B. Bienfang has been elected manager of the Builders' Exchange. The election took place at the reorganization of the exchange, and the outlook is promising for a very fair year. In addition to acting in the above capacity Mr. Beinfang will also continue his duties as manager of the Material Men's Credit Association. The offices of the latter organization have been moved from the First National Bank Building to the Exchange Building on Race street.

The annual meeting of the Builders' Exchange will be held in March at the headquarters of the organization. There will be two tickets, the red and blue, and the names of the respective candidates will be given out this month.

In order to boost the building situation here a luncheon is to be given to the building material supply men by the Platt Brothers Co. It will be given at the Chamber of Commerce dining room.

The Ohio Brick Sales Co., has been incorporated at Newport, Ky., with a capital stock of $10,000. The incorporators are: Attorneys Fred B. Bassman and Aubrey Barbour, and Adam C. Haas, a real estate broker. The company will buy and sell and manufacture building materials.

Botwin and Tunick, builders, will soon erect six dwellings near West Eight street and Carnation Ave., Price Hill. The minimum cost will be about $7,000 each. Later more houses are to be builded in the same locality by the above, as they have purchased a tract of land for the purpose.

The Fisher Estate will build a large apartment house that will contain more than 50 apartments at the northeast corner of McMillan street and Kemper Lane. It will cost about $350,000. The plans were drawn before the war, but the matter was delayed on this account. The apartments will range from two and a kitchenette to four rooms.

Extensive alterations and improvements will be made in the Burnet House on Vine street near Fourth. These improvements will cost thousands of dollars, and will be started in the very near future.

The Goodyear Tire and Rubber Co., of Akron, O., will build a six-story, fire-proof building at the southwest corner of Gilbert Ave. and Elsinore Place. It is said that all the details have been worked out and that the building will be the largest structure of its kind outside the down town section to be built this year. Philadelphia architects have the plans, and they also will have charge of the construction work. It will have an artistic exterior.

Bids are being received now for the north wing of the Dixie Terminal Building to be erected at the southwest corner of Fourth and Walnut streets. Garber and Woodward are the architects. A number of general contractors are to figure on this structure. It is the remaining building to be erected for the Green Line street car terminals for the Kentucky towns, and is the first big undertaking here since the entry of the United States into the war. It will be nine stories high from the Fourth street side and ten stories from the Walnut street level. It will be 1642 by 227 feet. An arcade, stores and offices will be parts of the building. The south wing of the building, facing Third street, is now under way.

The members of the Building Committee of the Board of Directors of Longview Hospital are considering the matter of making an addition to the structure which will likely cost about $500,000. The matter is to be taken up with the Commissioners of Hamilton County. Before the war there was some consideration of building several additions to the hospital and these were held up on that account. Elzner and Anderson are the architects who have prepared the plans.

William P. Bausmith, architect, has been preparing plans for the building of a combination Sunday School and recreation annex to the Presbyterian Church at Montgomery Road near Lester. It will be 50x60 feet.

The Kopp Klay Ko., is the name of the company that has recently taken over the plant of the Greenford (O.) Tile Co. Lewis Kopp, who has been identified with the Cincinnati Clay Co., and his brother John Kopp, of the Evans Clay Manufacturing Co., Urichsville, O., purchased the plant and will manufacture clay blocks and drain tile. Operations are to begin at once. C. T. Bliss has been appointed manager of the Cincinnati Clay Co., with offices on the 12th floor of the First National Bank Building here. Mr. Bliss comes from Washington, D. C., where he has been identified with the M. Evans Builders Co. He was formerly identified with the Buckeye Fire Clay Co., of Urichsville, O.

The Purcell Brick Co., is the title that has been given the face brick concern organized by Walter Purcell, formerly of the Purcell-Grand Co. Offices have been opened at 1008 Mercantile Library Building and the indications as reported here are very satisfactory to the new company.

As yet there has been no definite title given to the company that is being organzied by E. F. Grand, but this is likely to be the E. F. Grand Brick Co. It will take some time to get things in shape for the new organization, and this is delaying matters a little.

John Zettel, of the architectural firm of Zettel and Rapp, has made a suggestion that there be a Special Court created to solve all labor disputes, and in this way save both time and labor and materials. It will be helpful to all parties concerned. In his plan he believes that representatives of organized labor should be just as anxious to create a favorable building situation as is the architect and contractor, and in connection with his idea he expressed an opinion that the Building Trades Council of Cincinnati should plan a program that will eliminate all kinds of strikes and establish a definite wage scale.

CINCY.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XXXIV.

Horizontal Draft Kilns.

A DESCRIPTION of a horizontal draft periodic kiln would not be necessary except for our classification of kilns, because such kilns find little use in this country. We do not know of any distinctively horizontal-draft kiln at the present time, but we have seen one or two such kilns in the past which have since been abandoned.

It is an early type of crowned kiln and perhaps a natural adaptation of a furnace, a hearth and a stack.

Fig. 107 illustrates an early horizontal-draft kiln and little explanation is needed. There are three or more furnaces in the front, one of which is in the doorway, and after each burn is torn out to provide an entrance to the kiln. The kilns were built tapering on the sides and crown from front to stack presumably on the principle that as the gas gave up its heat, became lower in temperature and less in volume, the mass of ware to be burned decreased correspondingly. One would think that the reverse would be the proper principle wherein the high temperature gas and large volume would quickly pass the restricted mass of ware, leaving a greater volume of heat and a slower movement for the larger mass of ware. Whatever the correct principle the horizontal-draft kiln has little merit.

The nearest approach to a horizontal draft is a kiln used in burning fire bricks, shown in Fig. 108. It is properly a down-draft kiln but an effort is made to get a horizontal draft. It is equivalent to two horizontal kilns placed back to back. In each end are three furnaces, one being in the doorway. The bags are low and built of wide open checker work for the horizontal draft. Midway in the kiln is a cross main draft flue leading to a stack outside the kiln wall.

The kilns may be built singly, but usually they are in batteries of several kilns in touch with each other and it is only necessary to brace the outside walls of the end kilns. A further advantage of the battery construction is the elimination of some radiation loss from the sides of the kilns. The kilns are necessarily limited in capacity, and size considered it is not possible to get as uniform temperature throughout the kiln as in the more modern down-draft kilns. The best evidence of the inefficiency of the kiln is that the newer fire brick plants controlled by the same corporations have built the round down-draft kiln.

It has been our opinion for a long time that some type of a continuous kiln had its most promising field in the manufacture of fire bricks because of the high temperatures required and excessive fuel loss in consequence but there has been very little development along this line. One factory used for many years a gas fired semi-continuous ring (tunnel) kiln, now dismantled, and another factory built two gas fired chambered kilns of a Scotch design, but abandoned them after a short period. Also a small ring kiln, direct coal fired, on an Illinois fire brick yard has been wrecked after many years, use.

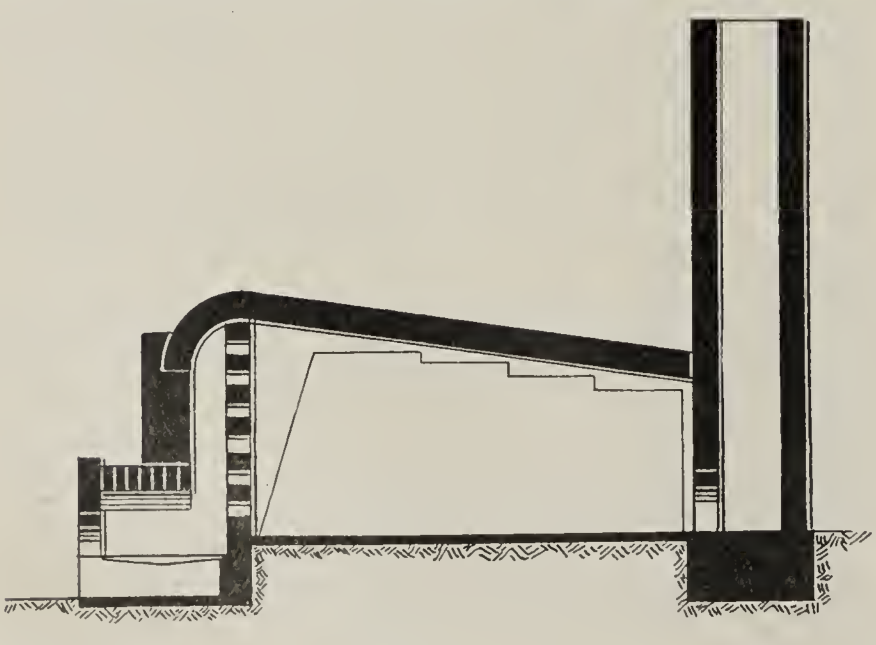
Figure 107.

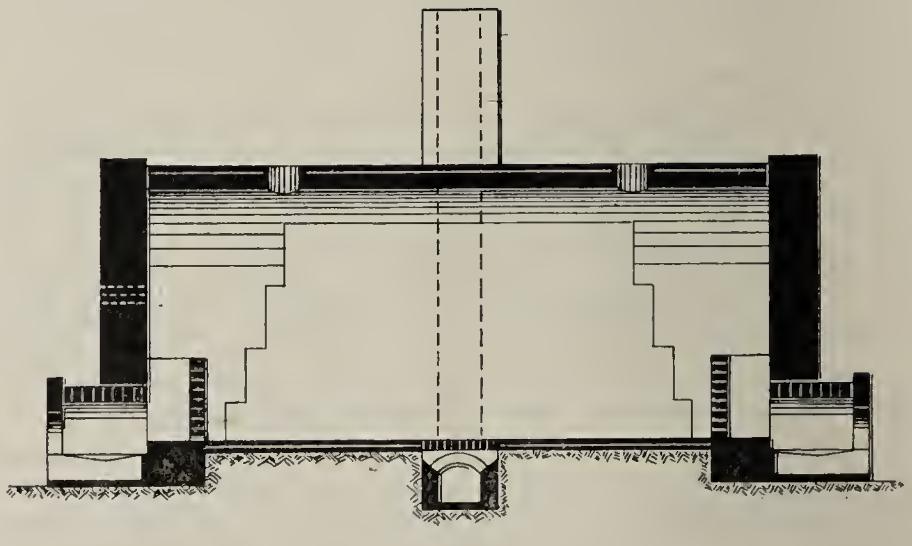
Figure 108.

In spite of the several attempts to use regenerative kilns in this industry and the unsatisfactory results, we do not believe this type of kiln has had a fair trial in this line, and we still hold the same opinion in regard to the usefulness of the continuous kiln in the fire brick industry.

At the present time three car tunnel kilns are being tried out in fire brick manufacture two of which are proven to be successful, and it is to be hoped that the problem of fuel economy in fire brick burning has been solved in these kilns.

Muffle Kilns.

Muffle kilns are used to burn terra cotta, enameled bricks, and other wares, which must be protected from contact with the furnace gases, and in consequence burned by radiant heat from a muffle wall separating the ware chamber and furnace flues.

It is apparent that, to be economical, the muffle walls must be as thin as possible and the arrangement of the kiln ducts must provide for a complete encircling of the muffle by the furnace gases. These are the problems of the muffle kiln.

The up-draft muffle kiln needs no illustration. If we take an up-draft pottery kiln such as that shown in Figs. 66 and 67, and build a muffle inside of it, we will have an up-draft muffle kiln.

If the kiln is small, no center flue is required but we retain the under floor flues connected with the furnaces although there is no positive draft movement under the floor. These flues extend across the kiln from furnace to furnace and the floor is heated by radiant heat from the furnaces and by convection through pulsations of the gasses as the pressure conditions in the several furnaces vary from time to time. When there is a large volume of gas in one furnace the pressure forces some of the gas under the floor, perhaps fully across to the opposite side, until the pressure all around is equalized.

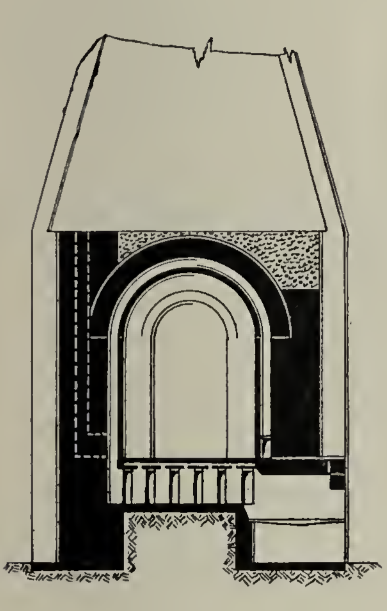
Figure 109.

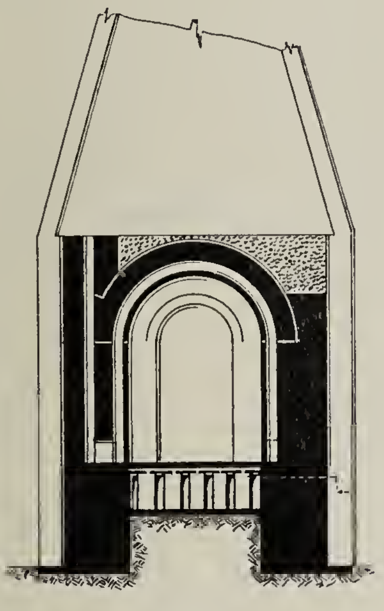
Figure 110.

The central opening or any openings between the under floor flues and the kiln chamber of the pottery kiln are closed when converted into a muffle kiln, and the bag walls are converted to an annular ring carried nearly to the height of the kiln wall and completed with a crown a few inches below the kiln crown. The movement of the furnace's gases is, up through the annular space between the muffle wall and kiln wall, then through the space between the muffle crown and kiln crown to a central vent in the kiln crown.

The stack may be the usual pottery stack resting on the kiln wall and tapered to the required opening at the proper height, or it may be a smaller structure supported by I beams, or by the kiln crown, or by a third crown sprung from the kiln walls for this special purpose. The latter mentioned supports are illustrated in Fig. 115.

For large up-draft kilns, the central opening in the floor of the pottery kiln is retained and extended to the top of the muffle crown by a circular wall. The movement of the gases under the floor and up through the central flue is positive, and the mass of ware within the muffle is heated by conduction through this flue wall and radiation from it to the ware as well as by conduction through and radiation from the circumferential muffle wall. Such up-draft designs are preferable for small kilns particularly for short flame fuels.

A rectangular muffle kiln developed in England and used in Canada in the manufacture of enameled bricks is illustrated in Fig. 109, Fig. 110, and Fig. 111. Fig. 109 is a vertical section through the furnace and Fig. 110 is a corresponding section through the flue adjacent to the furnace. Fig. 111 is a combined view plan below and above the floor.

The gases from the furnaces pass under the muffle floor to the opposite side, then up through a flue space between the muffle wall and kiln wall, and this flue continues over the muffle crown and down to the floor on the furnace side. When the gases reach this point they pass through an opening into the adjacent parallel flue, then rise, pass over the muffle crown, and down to the floor on the opposite side where they escape into the wall draft flue, up and out into the stack. Thus the gases make a complete circuit of the muffle and reverse except they do not pass under the floor a second time but instead are drawn off into the stack at the floor level.

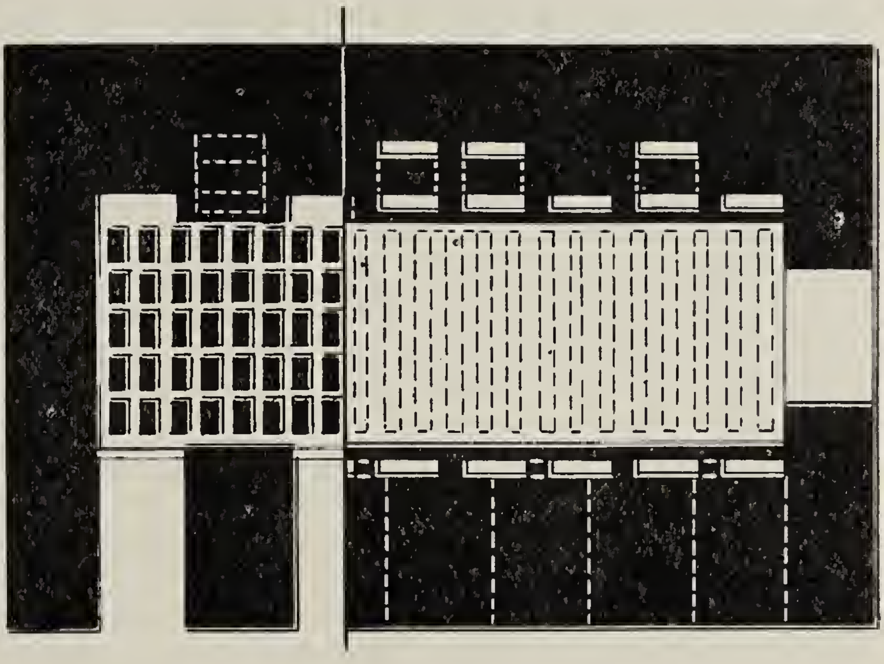
Figure 111.

The muffle floor support consists of a number of single brick piers which permit complete circulation under the floor, and this circulation may be controlled by dampering the individual wall draft flues.

(Continued on page 178.)

NEWS NOTES FROM PACIFIC COAST.

Gladding, McBean & Co. will soon have a new two-story office building in their Lincoln plant in Placer County, Cal.

Contractor H. P. Hoyt of the Monadnock building, San Francisco, is taking figures on the magnesite flooring for the factory buildings of the American Manganese Steel Company in Oakland, Cal.

It is understood that a new $75,000 hotel will be erected in Sacramento, Cal., before long, at the corner of 17th and U streets. The plans are the work of Arthur A. Poirior of Colusa, Cal.

Extensive improvements will soon be under way at the Palace Hotel, San Francisco, and already the additions to the Fairmont Hotel in the same city have been com-
able extent, and the new features of the Fairmont include
menced. The Palace will probably be enlarged to a consid-
a garage, stores, art gallery and a glass-inclosed roof.

REVIEW OF THE WISCONSIN CONVENTION.

A CROWD of thirty members of the Wisconsin Clay Manufacturers Association gathered at the Republican House Milwaukee January 30th to participate in the 19th Annual Convention of that organization. Of this number nineteen were actually manufacturers in Wisconsin. These gentlemen meeting annually have accomplished much good not only for themselves but the trade of the Badger state in general. They are striving to protect the interests of the Wisconsin clay product manufacturers in every way possible and have done much real construction work, it therefore seems a pity that the other manufacturers in Wisconsin do not lend them aid and moral support to such a worthy cause. This can only be shown by their attendance at these annual gatherings. The lack of interest in this particular may in a sense explain why the large majority of the clay business of Wisconsin goes to firms manufacturing outside the state limits. The Badger state is a rich field for the sale of clay products but the majority of the state manufacturers do not seem to fully realize that co-operation and good fellowship is absolutely necessary to place their business on the basis it rightfully belongs. This can only be accomplished through interchange of ideas and a better understanding all around. Let us hope this statement of fact has the influence on these non-attending manufacturers and that the coming years will not find them absent from these all important meetings.

Those who attended the annual Wisconsin meeting felt well repaid and were unanimous in the statement that they would never miss a meeting, deo-ad-valente.

Thursday morning January 30th was given over to the registration of members, reunions and button hole talks which were as equally beneficial as the Convention work itself.

Thursday afternoon the Convention was called to order by President John Ringle of Wausau. Secretary Samuel Weidman read his report which showed the financial condition of the Association in satisfactory state and also reviewed the constructive work done during the past season including committee work on freight rates and legislation. The treasurer's report (Edwin Fricke of Manitowoc) bore out the secretary's statement and was referred to the Auditing Committee which in a succeeding session presented it to the Convention with their approval and it was unanimously approved as read.

After reports of several standing committees President Ringle read his annual address which we are pleased to publish herewith.

PRESIDENT RINGLE'S ADDRESS.

Gentlemen of the Wisconsin Clay Manufacturers' Association:

It is scarcely necessary to allude to the conditions pertaining to the manufacture of Clay Products during the past year. Nor does it seem profitable to adhere to the habit of judging the future by the past, for the present at least, as a guide for business prospects.

We are grateful that the period of reconstruction, so called, has arrived and are looking forward with confidence to favorable conditions. We have met at a period in our history, when men in all lines of business feel the need of consultation and advice; and when the business man, who can gauge the future with a clear vision, is in demand. This fact, and the consideration of subjects primarily applicable to our industry in Wisconsin, is liable to stamp our present meeting as most important.

Prominent business men of America, nearly four thousand in number, recently met at Atlantic City for consultation, under the auspices of the American Chamber of Commerce: Confidence in a coming period of prosperity was most pronounced, and many and various were the recommendations made and adopted. It was understood that our country must continue to feed a famished world. That the cost of labor and of living will experience no appreciable reduction for a considerable period at least, and that it does not seem probable or desirable that labor conditions as they existed during the pre-war periods should again become effective in our country.

That means, in the manufacture of products such as ours, where 90 per cent. of the cost of manufacture is for labor, no reduction in cost, no lessening of price, unless it be through a larger volume of production and better service. It means also for every manufacturer, the necessary maintenance of a comprehensive cost system tending to discourage ruinous competition.

How will these conditions appear to the prospective builder who has been waiting for cheaper material? We must convince him, that the price of brick and tile is not a war price, and that Clay Products are the best and cheapest building material. Two million of our young men, returning from Europe will give evidence that Clay Products are the most serviceable and permanent.

The activities of the officers of this Association were necessarily limited. The necessities of the Government required regulations by the Fuel Administration, the War Industries Board and by the War Service Committee as to which, it was the duty of all to comply.

In respect to the increase in freight rates however, we deemed it our duty to protest, because of the effect of the order making the increase more than 25 per cent. on Wisconsin Clay Products, and higher, than was evidently contemplated by the Government Railroad Director.

Whether our protest reached the proper destination I am unable to say, but the conditions enumerated remain.

The uniform increase of freight rates on Clay Products of 2 cents per 100 pounds, without regard to distance, we consider unjust to the Wisconsin Industry and its consumers, because brick and tile is essentially a local product, and generally subject to short haul. Perhaps 50 miles is the average distance, as to which rates were increased 50 to 100 per cent. as stated. The result has been, the consumers of our products in Wisconsin were required to pay a much higher increase in freight rates than the 25 per cent. which was evidently generally contemplated, amounting to perhaps $50,000, during the season and in case the rate so fixed is continued it will no doubt have a deteriorating effect upon consumption.

It seems to me to be eminently proper at the time, for this Association to ask the proper authorities for a modification to the extent at least, so that the increase shall not exceed 25 per cent. above the rates fixed by the Wisconsin Commission and previously in force.

It is no doubt generally known that the Common Brick Manufacturers Association of America was organized during the past year. Since the Wisconsin industry is largely interested in common brick and some of our members have become associated, the subject matter may be properly considered.

If this Association succeeds in solving the long discussed problem of placing common brick in its legitimate position in the public mind and in the building world, it is an accomplishment much desired, not only so far as manufacturers are concerned, but also in the public interest. We realize that it is not the proper policy for manufacturers of the best building material to place the light unseen by the public.

We are meeting in annual convention for the 19th time, and those of us, who have attended our meetings, are well satisfied that we have derived much profit therefrom. Much good has been accomplishd by this association for the industry in our state, and much more work is necessary.

While it is true that Clay Product manufacturers as a rule, are not troubled by the payment of an excess profit tax, we feel that aside from individual interest, the work of our Association is in the interest of public welfare. We are developing a natural resource of our state. The command to build with brick and drain with tile, is sounding nearer and clearer. The period is inevitable, when necessity will force the universal consumption of the better building material, and of farm tiling, to insure a larger food product.

A large purpose of this Association is to enable its members to render the best service to the consumers of our product. As we adhere to this principle, we will contribute as we should, to the welfare of our country as well as our individual well being. We extend a hearty welcome to all who are in attendance at this meeting and hope the result will be mutually beneficial.

The Secretary then read a letter of regret from Oscar Wilson of Menominie, Wis., who was unable to be present. His paper on "Labor Problems in the Clay Industries" was read by the Secretary.

In his paper Mr. Wilson reviewed the labor conditions of the past year and stated that he felt that the wage scale would never return to the level of that of pre-war days and that the manufacturer should place his business on such a basis as to be able to meet the conditions. Labor saving devices, economy in the manufacture, a better product and a better price were considered the main essentials to secure the results desired.

A lengthy discussion followed in which Messrs. Haeger, Randall, Ringle, Hilker and Stiel made some timely suggestions. This is a vital question and every manufacturer owes it to his business to give this the most careful consideration. During the discussion one of the speakers made the important statement that almost 90 per cent. of the cost of manufacture was paid for labor and that it was the least understood and most carelessly handled.

Oscar Zimbal of Sheboygan, Wis., read a paper on the subject "The Artificial versus the Open Air Drying," in which he recited the advantages and disadvantages of both. The discussion brought out the fact that the material, the output and the climatic conditions formed the real basis for the type of drier to be used.

Following this discussion, President Ringle read a resolution on freight rates which he submitted to the resolution committee and then introduced J. W. Lazear of the Brown Instrument Co., who read an interesting and instructive paper on "The Use and Benefits of the Pyrometer."

After a short discussion, the meeting adjourned preparatory to the Round Table dinner which was held in the same room that evening. The main speaker at this dinner was C. P. Mertens, Secretary of the Common Brick Manufacturers' Association of America, who outlined the purposes of that newly formed organization and urged the co-operation and attendance of the Wisconsin Manufacturers at the meeting held recently in Chicago. The dinner and speeches were most enjoyable.

Friday morning, Prof. E. R. Jones of the University of Wisconsin presented the following paper.

STIMULATING TILE TRADE.

Gentlemen:

Since my last address to the Wisconsin Clay Manufacturers' Association we have been steadily tiling wet lands in Wisconsin, yet we have not made much of a dent in the total amount of tiling to be done.

On former occasions I have pointed out the need of more drain tile in Wisconsin. That same need still exists. More than half of the tile used in Wisconsin continues to be shipped in from outside of the state. For the sake of the farmers of Wisconsin who would profit by lower freight rates on tile, I plead for the manufacture of more tile in Wisconsin. Incidentally, the Wisconsin tile manufacturer would have the advantage over the Illinois tile manufacturer in that he could get his product into the hands of Wisconsin farmers at a lower price because of the lower freight rates.

Perhaps the reason why Wisconsin tile manufacturers have been slow to increase the tile output of their plants is that they are afraid of poor market conditions. I would like to emphasize in this paper the advantage to be gained by a close co-operation between the tile manufacturers and the retail lumber dealers of Wisconsin. Almost every lumber dealer in Wisconsin would handle tile if his interest were aroused. Recently at a convention in Madison I pointed out to the retail lumber dealers how they were missing their opportunity unless they developed a drain tile business. You, as tile manufacturers, can help them develop such a business.

The dealer must be educated as to methods of handling tile. I know of several lumber dealers who handle about a carload of tile a year. The tile occupy valuable space in the lumber yard and to pay for the trouble involved, dealers often charge as high as six cents a foot for 5-inch tile. This gives the farmers the impression that tile are very expensive and they buy very sparingly.

I know another dealer who is handling a great many tile with profit to himself and to his community, yet he never has more than 1,000 tile of assorted sizes in his yard at any one time. When a farmer comes to him and wants to buy 1,000 5-inch tile he sends him back home to look the ground over once more to see if he couldn't use 2,000 with profit. Then he sends him to find a neighbor who needs 2,000 tile and they combine the order, making a minimum carload of it. The dealer orders the carload of tile and when they arrive he telephones the farmers to come in after them. He lets the farmers know just what the tile cost him and charges them $10.00 extra for his trouble. He handles 40 or 50 carloads of tile a year in this way without touching the tile and without having any capital tied up in them. He has a surveyor's level and sends one of his men out into the country to run preliminary levels for farmers to help them decide how many tile they need. We need more dealers like this in Wisconsin and I hope the Clay Manufacturers' Association will help develop them.

I want to call your attention once more to my firm belief that 5-inch tile are the smallest that should be laid even for laterals. Until we get our farmers educated to this, we had better continue manufacturing a few 4-inch tile, but by all means quit manufacturing 3-inch tile.

After a short discussion, various committee reports were made, chief of which was the resolutions; the one on freight rates was as follows:

"Whereas, by reason of the General Order No. 28 of the Director General of Railroads, effective June 25, 1918, and now in force, the interstate freight rates on brick were increased two cents per 100 pounds without regard to distance. And whereas, said increase is greatly in excess of the increase of interstate and class rates and of other commodities, especially so far as it affects the short haul to which our product is chiefly subject, thus increasing said rates approximately 100 per cent. on a 10 mile haul, 75 per cent. on a 30 mile haul and 43 per cent. on a 100 mile haul, And whereas, the effect of said excessive freight rates is destructive of our industry in Wisconsin, causing stagnation in the building line, Therefore, be it resolved, that the Wisconsin Clay Manufacturers' Association, in convention assembled, respectfully and urgently makes petition that the increase in freight rates on brick as established by said General Order No. 28 be modified, to the extent at least of 25 per cent. of the distance rates established by the Wisconsin Railroad Commission and in force prior to said General Order No. 28."

A resolution was adopted asking the Wisconsin United States Senators to approve the formation of a League of Nations.

The following resolution on the death of George Schwarz was placed upon the records:

"Whereas; The Grim Reaper has, during the past year, taken from us our faithful member, Geo. Schwarz, therefore be it Resolved: That we express our deep and sincere grief at his demise, and extend to the family of our deceasd member our heartfelt sympathy, and with sorrow inscribe this brief memorial upon our records."

The election of officers was simplified by the re-election of all the old officers, namely: John Ringle, Wausau, Pres.; S. Gunther, Port Washington, Vice-Pres.; Samuel Weidman, Madison, Secretary and Edwin Fricke, Manitowoc, Treasurer.

The following is the list of those in attendance.

John Ringle, Ringle Brick Co., Wausau, Wis.; Louis O. Hyland, Northwestern Lbr. Co., Stanley, Wis.; L. Haigh, American Clay Mch. Co., Bucyrus, Ohio; A. W. Hilker, Hilker Brick Co., Racine, Wis.; M. De Boer, Chase Mfg. Co., Milwaukee, Wis.; G. M. Brown, Trevor Tile Co., Trevor, Wis.; F. L. Steinhoff, Brick & Clay Record, Chicago; John J. Moroney, Chicago Brick Mch. Co., Chicago; Oscar Zimbal, O. Zimbal Brk. Co., Sheboygan, Wis.; Erwin Fricke, Wm. Fricke & Sons, Manitowoc, Wis.; Ed Fricke, Manitowoc Clay Product Co., Manitowoc, Wis.; A. O. Wachter, Falls Brick & Tile Co., Sheboygan Falls, Wis.; S. Weidman, Secy. Wis. Clay Mfg. Ass'n., Madison, Wis.; Sam Gunther, Gunther Bros. Brick & Tile Co., Port Washington; J. F. Chambers, J. D. Fate Co., Plymouth, Ohio; Elmer Leach, Manitowoc Clay Product Co., Oshkosh, Wis.; W. H. McCarthy, Fire Brick & Fire Proofing, Chicago; Anton

Stiel, Jefferson Brick & Tile Co., Jefferson, Wis.; J. E. Randall, Clayworker, Indianapolis, Ind.; Wm. Meadows, Burlington, Wis.; G. P. Willett, Bristol Tile Works, Bristol, Wis.; J. W. Lazear, Brown Instrument Co., Chicago; George Meadows, Burlington, Wis.; D. C. Haeger, Aurora, Ill.; Geo. E. Burnham, Burnham Bros. Brick Co., Milwaukee, Wis.; C. E. Paeske, Burnham Bros. Brick Co., Milwaukee, Wis.; I. G. Toepfer, Acme Brick Co., Milwaukee, Wis.; C. P. Mertens, Common Brick Mfg. Assn., Chicago; G. E. Gilbertson, Main Belting Co., Chicago.

Written for The Clay-Worker.

PACIFIC COAST NEWS.

NO PARTICULAR change has occurred recently in the brick and clay situation on the Pacific Coast. It seems to be merely a question of the manufacturers marking time until building activities resume. However, there seems to be no doubt in the minds of the members of the trade that it is only a question of comparatively short time before the industry will swing back to its normal condition. In the meantime the manufacturers are bending every effort to get their plants into shape for the work which they feel is bound to come in the near future. The coast is not lacking in ready money, but it is the general opinion, that until the prices of materials reach a considerably lower level, there will be no building except that which is absolutely essential.

The apartment situation in San Francisco and Oakland is really becoming acute, it being impossible to secure modern apartments freely. Several builders have experimented on the remodeling of some of the older dwelling, and it is said that these are being quickly picked up.

The McKnight Fire Brick Company of Los Angeles has finally decided upon the location for its new brick plant, having made arrangements for the site with the Porterville Chamber of Commerce, within whose territory the factory will be built. Work will commence at once on the five acre tract where a six-unit plant is to be erected. J. L. McKnight and his brother J. H. McKnight, members of the company, say they hope to see the first unit, with a capacity of 10,000 magnesite bricks monthly, ready for operation within the next six months. J. H. McKnight stated that his firm expects to have practically free field in furnishing its products to the large smelter companies in the United States, due to the fact of the freight rates on ore, with the consequent re-shipment to the Rocky Mountain districts from plants in the east which are manufacturing furnace linings, making it possible for the California concern to lay the brick down at the smelters cheaper than the eastern factories. Before the war most of this brick was imported but it is thought that the superior quality of the brick made by Mr. McKnight will compete successfully with any other product on the market. Magnesite products will be the specialty of the company but as the occasion demands, other brick will be manufactured. The magnesite products will mean an increased demand for ore from the local mines. The members of the McKnight Company, practically all of the same family, have decided to make their homes in Porterville and J. L. McKnight has already secured a residence there.

J. H. McKnight is to have personal charge of the manufacturing and according to his statements, the McKnight bricks which have been subjected to the severest tests, are considered the equal of the best bricks which were formerly secured from Austria. He is of the opinion that the market for the products is fully assured, there being over 300 manufacturing plants in the west alone which use fire brick of some kind.

Architect W. J. Wright of Stockton, Cal., has bids under advisement for the erection of a one-story hospital and a one-story doctor's residence in Tracy, Cal. Bids are being considered for both frame and hollow tile construction. The lowest bid was submitted by J. F. Shepherd, 1031 West Vine street, Stockton, Cal., being approximately $18,000. The contract will probably be awarded to him on a percentage basis.

The Honolulu Lava Brick Co., Ltd., of Honolulu, T. M. has filed a petition for dissolution in the office of the territorial treasurer.

The regular annual meeting of the stockholders of the Remillard Brick Company was held on the 3rd of February at the company's office in the Phelan building, San Francisco, for the purpose of electing a board of directors to serve for the ensuing year. Several matters were brought under consideration and plans were outlined for the new year.

Mayor Lisenby of Long Beach, Cal., has been authorized to purchase 15,000 feet of pipe for the City's water works, without advertising for bids. The estimated cost is to be in the neighborhood of $19.71 per 1,000 feet.

The plans for the one-story brick hospital for Solane County to be erected at a cost of $100,000 are being prepared by architect C. E. Perry, Jr., of Vallejo, Cal.

The annual meeting of the stockholders of the Pacific Coast Pottery & Terra Cotta Company was held on the 25th of January in the offices of the company at 1009 S. Fifth street, San Jose, Cal.. A board of directors was elected and various matters of business were attended to.

San Francisco, Cal. SUNSET.
February 4, 1919.

OHIO POTTERIES IN BIG MERGER.

For the purpose of reducing the cost of their output by systematizing methods and standardizing products, and to extend their market zones, the nine leading stoneware pottery concerns of Souheastern Ohio are to be merged as the American Clay Products Co., with headquarters in Zanesville. Incorporation papers for the holding company, which will be capitalized at $100,000 have been forwarded to the secretary of state by Attorney C. T. Marshall and the new company will be organized within the next few days.

The nine companies merging represent a combined capital stock of more than $2,000,000. These concerns are: Ransbottom Bros., Pottery Co., Roseville; A. E. Hull Pottery Co., Burley & Winter Pottery Co., The Star Stoneware Co., and The Crooksville Pottery Co., all of Crooksville, McCoy Sanitary Stoneware Co., Roseville, Logan Pottery Co., Logan, and The Muskingum Pottery Co., of White Cottage.

Naturally the extension of trade zones will mean increased production at each of the nine plants in the big merger and this will also result in an enlargement in the line of manufacture. The American Clay Products Co., will be one of the largest concerns of the kind in the country.

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DRY KILN BUSINESS GOOD.

H. Wirsching, of the Standard Dry Kiln Co., who camps on the Dayton, Ohio, corner of the earth, says that the dry kiln business is making very good progress in the swing from war business back to peace doings. Inquiries are coming in right along and it looks like the industrial readjustment is coming along very nicely.

THE KENTUCKY MEETING.

THE ANNUAL meeting of the Kentucky Clay Products Association was held at the Old Inn, Louisville, January 21, and active steps were taken to do some real work during the year, in which it is hoped that every brick man of the state can be induced to join. To make the way open and easy all dues have been suspended for the time being. since there is money enough already in the treasury to meet current needs. And when additional funds are needed they will be raisd by voluntary assessment.

President H. C. Cramer presided at the meeting and asked for an expression from all present on business conditions and building prospects. Out of this it was developed as the sense of the meeting that a building prospect survey of the state should be undertaken, and a motion to this effect was carried. The plan is to have the secretary inquire of each manufacturer of the prospects in his territory, and when all reports are in make a brief review of them to each member reporting.

Another step decided upon was that of putting the common brick business of the state on an open competition or open price basis. This work it is thought will prove very important during the period of re-adjustment when every one will be wondering all the time what price the other fellow is likely to be making. And as a preliminary step toward it there was a general listing of present prices by those in attendance, which showed some interesting contrasts and proved quite an eye opener to some of those present.

J. Crow Taylor, Louisville, Ky.

The meeting voted to send the Secretary, J. Crow Taylor, to the annual N. B. M. A. convention at Pittsburg, and to have representation at the common brick meeting at Chicago. Following these meetings another meeting of the Kentucky Clan will be called to complete the details for carrying out the work planned, especially in relation to the putting into operation a simplified plan of open price competition

The gathering took lunch in a body at the Old Inn, and following the completion of the day's program, the visitors were driven in autos out to the plant of the Southern Brick & Tile Co., to see the working of a producer gas kiln which T. Bishop of this firm has recently installed.

The Attendance.

H. C. Cramer, Lexington Brick Mfg. Co., Lexington.
T. Bishop, Southern Brick & Tile Co., Louisville.
H. C. Kleymeyer, Standard Brick Mfg. Co., Evansville, Ind.
F. C. Klutey, Kleymeyer-Klutey Brick Co., Henderson.
A. T. Kleymeyer, West Point Brick & Lumber Co., West Point.
J. T. Howington, Coral Ridge Clay Products Co., Louisville.
Isaac Tyler, R. B. Tyler Co., Louisville.
L. Ruby, Providence Brick Co., Providence.
A. H. Schneider, Nicholasville.
H. J. Suhrheinrich, Standard Brick Mfg. Co., Evansville, Ind.
J. Crow Taylor, Louisville.

Officers and Directors of the Kentucky Clay Products Association:

Officers.

President—H. C. Cramer, Lexington.
First Vice-President—F. C. Klutey, Henderson.
Second Vice-President—Isaac Tyler, Louisville.
Treasurer—J. T. Howington, Louisville.
Secretary—J. Crow Taylor, Louisville.

Directors.

I. Ruby, Madisonville.
Isaac Tyler, Louisville.
A. H. Schneider, Nicholasville.
F. C. Klutey, Henderson.
M. J. Bannon, Louisville.
H. C. Cramer, Louisville.
H. T. Miles, Maysville.
A. P. Hillenbrand, Louisville.
A. T. Kleymeyer, West Point.

THE 1918 BUILDING FIGURES.

Statistics compiled by the American Contractor from 148 cities in the United States will serve to give some idea of how much building has been postponed that should be done now. The total of permits from the 148 cities for the year amounted to $414,796,903, as compared to $676,662,205 in 1917, and to $889,884,679 in 1916. In a word the decrease for the two years puts us just about a year behind in building operations. Much of the hold up too was in home building, so we should by all means have a big year in home building. Already there is improvement, an air of renewed activity all around in building circles, coupled with a wide interest in promoting building activities. It looks like a busy year. Are you ready for it?

CLAY MINERS AND MANUFACTURERS OF NEW JERSEY MEET.

The Clay Miners' and Manufacturers' Association of New Jersey, composed principally of the clay men of Middlesex county, had a banquet at the Hotel Packer, Perth Amboy, on January 30. The attendance was fully as large as it has been at previous similar gatherings and great interest was shown in the various discussions, most of which centered around reconstruction. The trail of war is still plainly visible in the clay workers' field in New Jersey and whenever clay men gather they discuss the most vital of the subjects which interest them. Nothing exceeds reconstruction at present and that was the theme at this gathering. Incidentally the clay men of New Jersey are assuredly setting an excellent example to others in their numerous gatherings of different kinds. It at least indicates that the spirit of co-operation is increasing in this state.

It is a little difficult to outline just what does constitute the ideal in ethical competition, but most people are agreed that it is not made up mainly of price-cutting.

THE CHICAGO MEETINGS

American Face Brick Association, Face Brick Dealers Association and Common Brick Manufacturers Association of America Hold Annual Conventions.

THE ANNUAL Convention of the American Face Brick Association, the Face Brick Dealers' Association and the Common Brick Manufacturers' Association of America, February 10, to 14th, brought to the Windy City representative men in the trade from all sections of the country. The two face brick organizations met at the Edgewater Beach Hotel in the extreme northern portion of the city, far removed from the noise and bustle of the business center. Having met at previous conventions at French Lick, the members were much at home and pursued the even tenor of their deliberations as separate groups but under the same roof, much as they have done as guests of Tom Taggart's famous hostelry in previous years.

The program of the American Face Brick Association provided for a business session Monday afternoon at which reports of officers were heard, followed by the

PRESIDENT'S ANNUAL ADDRESS.

Geo. A. Bass, St. Louis.

Each successive meeting has been regarded as a critical period in the life of the Association. Certain it is that if we do not go forward we must necessarily go backward. Are we now making progress? Are we in fact a going concern?

Probably no industry was formerly more demoralized than ours. Producers of a valued and ancient product, we may have commanded honor and respect in our community, but as competitors, in our dealings affecting each other, we did not generally recognize any standard of ethics.

Our friends were more apt to be distant makers of competitive materials than our neighbors in our own industry. All were lone hunters and under suspicion.

If a fellow manufacturer was in trouble there was rarely a helping hand extended him but rather an additional skid found to keep him on his way.

If one sought to develop business in competition with other lines, the chief knocks came from his neighboring brickmaker. We were more interested in sales developed by others in distant cities than in promoting work in our own locality. We sold at a loss rather than permit of another's gain.

If we ever joined hands it was simply a temporary understanding for the purpose of eliminating some fellow competitor for whom there was mutual fear and dislike. A specification or a signed contract only stimulated renewed effort. We indulged in "phony" quotations and the wiley contractor traded us out of enough to have made plenty for all. Our friends were of the enemy, our ethics confined to text books.

In the main just primitive competition of ye olden knockdown, drag-out, rough-neck type, neither asking nor giving quarter.

Most competitive methods in all business were similarly bad. Reforms have come and methods of dealing have so changed that the time-honored principle of the survival of the fittest no longer holds, and we now condemn as unfair much that we formerly commended.

Associations of all kinds have aided greatly in this propaganda. As we have become acquainted with each other, our horns have gradually disappeared and we see virtues unsuspected and recognize and acknowledge ability and merit and fully accord credit to those we did not even deign to know.

As we have watched developments the past year, we have all been impressed with the rapid changes and further marked progress in business methods. We are in a transitory period of a strange new era, and no thinking man can now compare his business in the light of even one year ago.

You were in Atlantic City with 4,000 other men, comprising over 400 war service committees, representing all lines in all business that had been organized either by the government itself or appointed by associations already organized, that had been developing for their period of service, during the war. There was all seriousness and no discord—unanimity of feeling and sympathy, and right there under impressive circumstances there seemingly grew a strange realization of the meaning of recent history, as effecting not only the democracy, but the business of the world.

During my terms as your president I have had opportunity to form some conclusions, and while I think well of the progress made, and believe you easily have the possibility of a most helpful and valuable organization, it is my chief observation that there is now great need in this Association for a better morale.

We are neither trained nor disciplined and not ready to go over the top and contend with our competitors in other lines. Neither are we sufficiently self-respecting. The Fire Brick man throws out his chest. talks about his factory and his art with enough assurance and mystery to hold attention and be impressive. We, on the other hand, too often call our equally useful product, commons, and refer to our expensive factories, as yards. Ours is no longer a mule, wheel, coon and sun proposition. More publicity, with a higher dignity and a better understanding, would produce true respect, a genuine interest, and a profitable appeal.

Put a trade mark on your product and you at once add to your responsibility, and automatically are more zealous in maintaining your good name.

Ours should be a common cause for a common purpose, the promotion and increase in masonry construction—anywhere and everywhere—increase the use and total sales, and we need have no concern for individual sales.

Will we recognize and seize our opportunity? I, personally, propose to make no further special plea, it is for you to recognize your own great necessity and responsibility. I finally, however, simply call to your attention the painful fact that yours is the only great industry not generally known—yours is the only voice not generally heard.

Should we have sufficient wisdom, ability, and energy to undertake and sustain a publicity campaign, it will be not only desirable but necessary, that we broaden and extend our vision. We must forget the contentious past, look beyond each individual matter and give estimate on the basis of average benefits. A principle of action should no longer be good or bad, and have our support, only on the basis of estimated individual benefit or injury.

We are far from what we may or should be. There have been many errors in judgment and mistakes have constantly been made. Many of us continue thoughtless of others and are still most narrow in our views. Others have been over cautious and slow of development and have as yet but a poor grasp of the association idea.

Much self-sacrificing good work has been done by the willing few, and you are under great obligation to your divisional group, chairmen, and secretaries, and your war service committees.

Unless, however, we lose the willingness to let "George do it," and wake up and take a serious, active, constant interest, that we may together build up strong, harmonious divisional groups, that will considerately co-operate with all groups, then there can be no hope for the satisfactory solutions of our many serious problems.

We are most fortunate to have so well come through the hazardous war period. We had many serious and irksome regulations and restrictions that were fortunately compulsory on all. As we now enter the uncertain period of reconstruction, there is need that we voluntarily govern and restrain ourselves, lest we too quickly approach quantity production and have price demoralization. United, we will have sufficient courage to wait, hold steady, and get ready to eventually obtain sufficient and proper profits in the coming expansion. Applause.

The first formal convention paper was then presented by E. H. Scull, Manager of the System Staff, Ernst & Ernst, Chicago, on "The Comparison and Use of Vital Information Between Plants in the Same Industry." It was an interesting and instructive presentation of up-to-date cost accounting illustrated with charts, graphically showing the variations that occur in the effort to determine cost of manufacture by different methods. One member who has followed the cost accounting procedure from the beginning, declared it to be the most instructive presentation of the subject that had yet been made. This and other formal papers will, we presume, be given to the trade through the secretary's office in due time.

Frank W. Butterworth, President-elect.

The second session Tuesday morning was devoted to the consideration of our freight rate problems, Mr. M. F. Gallagher of Gallagher, Kohlsaat & Rinaker, Chicago, presenting a carefully prepared paper on the subject. Mr. Frank J. Pollays, Special Agent of the U. S. Department of Labor, followed in a very interesting address on "Government Co-operation for Re-construction."

Mr. Pollays was in France both before and following the declaration of war and told many interesting incidents that came to his personal attention over there. He scored the Hun methods, that prevailed in Germany, unmercifully, then told of the plans of the government to assist in the re-construction period by aiding Building and Loan Associations, to refund their long time securities and thus provide ample ready money to the builders of homes in order that they may begin building at once rather than to delay in the hope of obtaining lower prices. He demonstrated to the satisfaction of all present that the home builder would profit by building at present prices, if he built substantially of brick or other indestructible materials.

Home building and home owning is the basis of the strength of the nation. The man who owns his own home is never an anarchist or a Bolsheviki. "While the home is not a negotiable investment, history has shown that it pays very large financial returns in the increased efficiency of the family. The home owning spirit is being awakened in about 120 cities throughout the United States in which agitation is now active.

One of the greatest factors in making home owning possible is Building & Loan Associations. These Associations are unable to supply the demand for money made on them because they are dependent upon the weekly payments of their members, but they possess nearly two billion dollars worth of securities which they desire to pool in Home Loan Banks in each Federal Reserve district, in order that they may borrow upon these collateral assets, and with the proceeds furnish home builders with the money to undertake their small projects.

There are 7,200 such institutions throughout the country. Loss is practically unknown to them. Their directors serve without compensation and are the reliable men of the community. Last year they did a business of $1,250,000,000 at a cost of eight tenths of one per cent."

The building of schools is one of the most important phases of the reconstruction work and this is being advocated by the Educational Division of the Department of Labor with a most urgent appeal for the municipal officials to plan at once the erection of schools much needed throughout the country. The future of the nation rests upon the education of the boys and girls of today.

No consideration can be urged against making that education so thorough that the destiny of the country may be placed in the care of its future guardians without apprehension of the consequences.

School buildings should be the chief object of civic pride. Tax rates, bond issues, financial bugaboos of every kind should be thrust aside when the building of a new school is up for discussion. None of these can outweigh in importance the value of education to the child and to the country.

That is one of the outstanding facts of the war.

Not only are many of the old school buildings useless for their purposes, but the need of the times is for more new school buildings everywhere. Reports say that in many places the children are crowded and herded so that effective education is almost impossible because the thoughts of the pupils are constantly distracted from their work. The result of such a system will surely be half-baked intellects and inefficient men and women. And that, in turn, will mean national decadence.

The working people are vitally concerned in this school-building question. It is their children who are the pupils of the public schools. It is their children who will suffer through the neglect of our system of education. It is their children who will not be properly equipped for the battle of life. Then the slogan of the working people should be: "BUILD NEW SCHOOLS."

Wednesday was given over to official business, reports of resolutions committee and other unfinished business. The election of officers resulted in Mr. Frank W. Butterworth being chosen as president for the ensuing year, the other officers being re-elected.

Brick Dealers.

The Dealers' Association followed much the same program, interesting addresses being given by B. W. Ballou of Buffville, Kans., B. Mifflin Hood of Atlanta, Ga. and F. N.

Blanchard of Lincoln, Nebr. John M. Stoner of Cincinnati was re-elected president and D. W. Clark of Buffalo was elected secretary-treasurer. The Board of Trustees and Vice-presidents were re-elected with but one or two changes.

The big idea at both meetings was the plan to raise $300,000 for publicity work. The project was started two years ago or more and abandoned for the time being when the depression incident to the war period was encountered. Now that the reconstruction era is approaching, the movement is again taking shape and with excellent prospects of success. It provides for a levy of fifty cents per thousand brick made, provided a sufficient number sign up to reach the aggregate of 600,000,000 capacity per annum. A large part of this sum has already been guaranteed. It is to be devoutly hoped that the movement will be carried on for the industry would be vastly benefited thereby.

The Annual Banquet.

The grand climax of the Chicago meetings occurred Wednesday evening when the three associations joined in an annual banquet which was held in the main dining room of the Edgewater Beach Hotel. It was thronged by a merry crowd that needed little encouragement to break forth into song or cheer to the echo any and everything for the amusement of those present, among whom a score or more were ladies, the wives and daughters of the members.

Our own Button-holer, W. D. Gates, ex-president of the N. B. M. A., was Master of Ceremonies, and with clever wit for which he has gained deserved fame, he made up for the otherwise too serious preachments of the chosen speakers. The banqueters were greatly disappointed in failing to hear Harry A. Wheeler, who was to have been the chief toaster, but unfortunately he was called East unexpectedly. Mr. H. H. Merrick, president of the Central Trust Company of Illinois, proved an excellent substitute. He spoke in an optimistic vein relative to business conditions and future prospects.

Mr. Frank J. Pollays followed with a most entertaining discourse covering some of the subjects he had discussed at the convention session, emphasizing the need for home building and stating that the Department of Labor would exert its best endeavors for government co-operation to the end that building operations may be resumed throughout the land, thus giving employment to many of the returning heroes. Mr. Pollays spoke for the U. S. Department of Labor, and being a trained orator held the close attention of the audience for more than an hour. His message was a serious one, dealing with the needs of the times.

RESOLUTIONS ADOPTED BY THE A. F. B. A.

1. How is business? Reports from divisions indicate that the industry may reasonably expect 65% of the normal volume of business, measured quantitatively.

2. Cost of production as compared with 1916? Reports from divisions indicate that the industry may reasonably expect the cost of production to remain 70% higher than in 1916.

3. Condition of stocks and orders as compared with January 1, 1916? Reports from divisions indicate there is 40% of stock on hand and 20% of unfilled orders as compared with January 1, 1916.

4. Resolved, it is the unanimous recommendations of the divisions of The American Face Brick Association that all face brick manufacturers shall immediately harmonize their cost systems with the base plan of the endorsed Association System and that every encouragement shall be given to the plan of cost clearance by interested groups.

5. Resolved that the divisions recommend the price policy be based upon costs of production which shall include added overhead for idle time.

6. Resolved that the divisions recommend that the committee appointed by the president of The American Face Brick Association to confer with other clay interests on the matter of freight rates, shall constitute the Traffic Committee of The American Face Brick Association, and shall be given authority to act for the Association.

7. Resolved that the divisions of The American Face Brick Association endorse the promotion plan of The American Face Brick Association and earnestly urge every Face Brick manufacturer to immediately sign the Articles of Agreement.

8. WHEREAS, The Face Brick Industry, by reason of a wide distribution of raw material is menaced by frequent ill-advised and illogical promotions of new palnts, and

9. WHEREAS, this Association has interests in common with the other organizations of the clay industry,

10. THEREFORE, BE IT RESOLVED, the A. F. B. A. favors the creation of a joint bureau, to be equitably supported by the various organizations, and directed by a committee of two from each association to be appointed by the president. The function of the said bureau is to safeguard the common interests of the clay industry.

THE COMMON BRICK MANUFACTURERS' ASSOCIATION OF AMERICA.

The meetings of this, the first convention of the C. B. M. A., were held in the LaSalle Hotel where the delegates gathered and were be-badged. Looking over the audience, it seemed very much like an N. B. M. A. convention, so many of the faithful of the parent organization being in attendance. The first formal session was held Wednesday afternoon when Mr. W. N. Cary of Mechanicville, N. Y., delivered an address on "Our Association." He argued convincingly that there was great need for a working organization of common brick manufacturers. All present seemed to be heartily in accord with him on the subject. Thursday morning the convention listened to an able address by H. W. Conway on "Cost Accounting as Applied to the Brick Business." In the afternoon a representative of N. W. Ayer & Co., of Philadelphia, spoke on the "Possibilities in Advertising." He told many instances of how great benefits had been derived in great organizations through the medium of magazine advertising and the applause which followed his closing remarks proved that he had touched a responsive chord in the minds of those present. The closing session was devoted to the reports of committees and election of officers which resulted as follows:

William Schlake, Chicago, Ill.

President, Wm. Schlake; Vice-president, C. H. Bryan; Treasurer, Ernest S. Barkwill; Temporary Secretary, C. P. Mertens. The directors for the year 1919 include Wm. Schlake, Warren Griffiss, W. N. Cary, C. H. Bryan, Ernest Barkwill. Tom W. Green, J. T. Reynolds, Max D. Almond, Geo. A. Parry, B. W. Ballou, Fritz Salmen, Jno. P. Cahoon. Through the courtesy of Secretary Mertens we are enabled to give the list of common brick manufacturers registered during the convention. There were quite a number of others present but they were considered as guests only.

COMMON BRICK MANUFACTURERS IN ATTENDANCE.

NAME. REPRESENTING. ADDRESS.

J. B. GARRARD, Standard Clay Co., Tacoma, Wash.
OLE ARNEGARD, Ole Arnegard, Hillsboro, N. D.
JNO. F. OSBORNE, Corinth Brick Co., Corinth, Miss.
R. H. PRATT, Calumet Brick Co., Chicago.
F. H. KIEST, Illinois Brick Co., Chicago.
W. E. BROGDON, Tennessee Brick and Tile Co., Dyersburg, Tenn.
JNO. W. REAGAN, Knoxville Brick Co., Knoxville, Tenn.
ARTHUR C. KENNETT, North Star Tile Co., North Star, Mich.
E. S. BARKWILL, Barkwill-Farr Co., Cleveland, O.
H. J. FARR, Barkwill-Farr Co., Cleveland, O.
R. J. DAWSON, Barkwill-Farr Co., Cleveland, O.
L. B. KOBLITZ, Barkwill-Farr Co., Cleveland, O.
H. W. CONWAY, Barkwill-Farr Co., Cleveland, O.
JAS. RUBY. Barkwill-Farr Co., Cleveland, O.
J. M. BEBILLE, Barkwill-Farr Co., Cleveland, O.
C. A. NOLL, Blackwell Brick Co., Wichita, Kans.
C. H. BRYAN, Mercier-Bryan-Larkins Brick Co., Detroit, Mich.
J. A. MERCIER, Mercier-Bryan-Larkins Brick Co., Detroit, Mich.
JOHN S. HAGGERTY, Haggerty Brick Co., Detroit, Mich.
GEO. H. CLIPPERT, Geo. H. Clippert & Bro. Brick Co., Detroit.
CHAS. F. CLIPPERT, Geo. H. Clippert & Bro. Brick Co., Detroit.
MAX D. ALMOND, Whiteselle Brick & Lumber Co., Corsicana, Tex.
TOM W. GREEN, Tom Green Brick Co., Sioux City, Iowa.
CARROLL CONNETT, St. Joseph Pressed Brick Co., St. Joseph, Mo.
FRANK C. LAYER, Builders Brick Co., Chicago.
CHAS. FRANCIS, Francis Vitric Brick Co., Muskogee, Okla.
JOSEPH SIDLO, Builders Brick Co., Chicago.
WALTER E. HILTON, Dunkirk Brick & Tile Co., Dunkirk, N. Y.
JUL. H. BACH, Bach Brick Co., Chicago.
W. E. WEATHERFORD, Globe Press Brick Co., Ferris, Tex.
J. B. WILCOX, The Alliance Clay Product Co., Alliance, O.
G. E. BURNHAM, Burnham Bros. Brick Co., Milwaukee, Wis.
H. SUER, H. Suer & Sons, Cincinnati, O.
EDWIN L. MITCHELL, The Mitchell Brick Co., Cincinnati, O.
F. H. HAAR, The Busse Brick Co., Covington, Ky.
D. F. MOREY, Morey Clay Products Co., Ottumwa, Ia.
WARREN GRIFFISS, Baltimore Brick Co., Baltimore, Md.
F. E. VANDERHAYDEN, Muskegon Brick & Tile Co., Muskegon.
FRANK W. ALSIP, Calumet Brick Co., Chicago.
W. W. ITTNER, Belleville Brick & Tile Co., Belleville, Ill.
J. FRED SMITH, Smith Brick Co., Omaha, Neb.
B. H. RICHARDS, JR., Richards Brick Co., Edwardsville, Ill.
W. P. GRATH, Jersey Clay Products Co., Dow, Ill., and St. Louis.
JOHN T. HUMMERT, Gem City Press Brick Co., Quincy, Ill.
J. FORD, Ft. Wayne Brick Co., Ft. Wayne, Ind.
OTTO C. OEHLER, St. Louis Continental Brick Co., St. Louis, Mo.
EDWARD J. RYAN, American Press Brick Co., St. Louis, Mo.
C. H. ALSIP, Calumet Brick Co., Chicago.
WM. F. BACH, Bach Brick Co., Chicago.
H. D. DRURY, Drury Brick & Tile Co., Essex Jct., Vt.
JOHN M. HECKARD, M. Heckard & Sons, Canton, Ill.
M. D. GILMER, Indianola Brick Co., Indianola, Miss.
JOHN J. MORONEY, Grand Rapids, Brick Co., Grand Rapids, Mich.
C. J. WEBER, National Brick Co., Chicago.
WM. HAMMERSCHMIDT, Lombard Brick & Tile Co., Lombard, Ill.
W. A. HOWELL, Collingwood Brick Co., Toledo, O.
L. S. COLLINS, Los Angeles Brick Co., Los Angeles, Cal.
P. L. GASTON, Riverside Brick & Mfg. Co., Hattiesburg, Miss.
F. C. ASCHEMEYER, Hydraulic Press Brick Co., St. Louis, Mo.
G. C. COLE, Lone Starr Press Brick Co., Ferris, Tex.
E. H. SCHILLING, Farmers & Merchants B. & T. Co., Marshalltown, Iowa.
R. S. DINGLEDINE, The Columbus Contractors Sup. Co., Columbus, Ohio.
R. L. BYRAM, El Reno Brick Co., Okla. City, Okla.
E. R. DICK, Coffeyville Brick Co., Coffeyville, Kas.
R. O. CLARK, The C. P. Merwin Brick Co., The R. O. Clark & Son Brick Co., East Berlin, Conn.
W. N. CARY, Cary Brick Co., Albany, N. Y.
J. H. SUDERLEY, Sutton & Suderley Brick Co., Coeymans, N. Y.
V. H. CARTWRIGHT, Lacon Clay & Coal Co., Lacon, Ill.
C. W. KING, Central Connecticut Brick Co., New Britain, Conn.
M. H. DONNELLY, The Donnelly Brick Co., New Britain, Conn.
H. R. CLARK, The Aetna Brick Co., East Berlin, Conn.
R. A. MOORE, Duffney Brick Co., Mechanicsville, N. Y.
J. B. MAMER, Mamer Brick Co., Benton Harbor, Mich.
A. N. DUNLAP, Ohio Brick Co., Toledo, O.
T. B. WEAVER, Burke Brick & Tile Co., Ft. Smith, Ark.
GEO. A. PARRY, Boston Brick Co., Boston, Mass.
WILLIAM SCHLAKE, Illinois Brick Co., Chicago.
JAS. R. THOMAS, The Standard Brick Co., Crawfordsville, Ind.
J. F. REYNOLDS, I. L. Stiles & Son Brick Co., North Haven, Conn.

MAX W. DRURY, Drury Brick & Tile Co., Essex Jct., Vt.
G. H. STILWELL, Merrick Brick Co., Syracuse, N. Y.
F. C. VANESELTINE, Merrick Brick Co., Syracuse, N. Y.
F. R. CARTER, Peoria Brick & Tile Co., Peoria, Ill.
B. J. CUMMINS, Merrick Brick Co., Syracuse, N. Y.
J. DRTINA, Chicago Brick Co., Chicago.
E. LANGENBERG, Langenberg Brick Mfg. Co., Stevens Point, Wis.
C. F. MATTES, Decatur Brick Mfg. Co., Decatur, Ill.
JAS. T. HOWINGTON, Coral Ridge Clay Prod. Co., Louisville, Ky.
BERNARD F. WEBER, National Brick Co., Chicago.
C. E. VERNAY, Lacon Clay & Coal Co., Lacon, Ill.
CLAUDE SMITH, Smith Brick & Tile Co., Mason City, Iowa.
C. L. SMITH, Smith Brick & Tile Co., Mason City, Iowa.
GEO. STIRLING, Tom Green Brick Co., Sioux City, Iowa.
F. W. BUTTERWORTH, Western Brick Co., Danville, Ill.
J. M. JENKINS, JR., Jenkins Brick Co., Montgomery, Ala.
EBEN RODGERS, Alton Brick Co., Alton, Ill.
O. K. EDWARDS, Pacific Face Brick Co., Portland, Ore.
HANS PAULSEN, Hans Paulsen, Rock Island, Ill.
W. H. BRECHT, Flint Brick Co., Des Moines, Ia.
JNO. M. STONER, Blair Brick Co., Cincinnati, O.
THOS. L. HERBERT, Bush Brick Co., Nashville, Tenn.

BRICK PRICES IN CHICAGO CALLED LOWEST IN U. S.

Builders Urged to Take Advantage of Chance to Boom Trade.

"Brick is cheaper in Chicago than in any large city in the country, and considerably lower than in the smaller towns."

That is the statement of William Schlake, president of the Illinois Brick company and head of the common brick makers of the entire country. This group is having an annual conven-

To prove his statement, as well as supply a convincing argument for the starting of construction in Chicago, Mr. Schlake has been collecting information for two days from the delegates present.

29 Cities Surveyed.

The data collected is written and signed by the man giving it as well as by the name of the firm he represents. Returns have been obtained from twenty-nine cities, and from nearly 50 per cent. more brick companies.

The following short table shows not only the common brick price in eight large cities, but also indicates how the prices have been advancing during the last three years:

	1916.	1917.	1918.	1919.
Louisville	$ 8.50	$12.50	$20.00	$17.50
*San Francisco	7.50	10.00	11.00	12.50
Boston	12.00	14.00	17.00	18.00
Detroit	9.00	11.00	12.00	13.00
†New York	7.35	8.15	10.85	14.00
Philadelphia	8.50	12.50	14.00	19.00
Cincinnati	10.00	13.00	15.00	16.75
Chicago	7.00	9.00	12.00	12.00

*Delivered at plant. ‡Delivered at ferry.

New York Prices High.

All of these prices are for brick delivered "to the job" with the two exceptions noted. Brick men at the convention estimated that $2 should be added to the prices in New York and San Francisco to get comparable figures with other cities. Delegates who were away from the meeting yesterday afternoon will give the exact prices today for these two cities.

Anothr table shows the prices of Illinois and other nearby towns as compared with those of Chicago as follows:

City.	1916.	1917.	1918.	1919.
Chicago	$7.00	$ 9.00	$12.00	$12.00
Decatur	8.75	10.00	12.50	15.00
Edwardsville	8.50	8.50	10.00	15.00
Peoria	7.50	9.00	12.00	13.00
Belleville	8.00	11.00	17.00	17.00
Ft. Wayne	9.00	11.25	12.50	14.00
Evansville	7.00	7.45	11.66	13.50
Crawfordsville	7.50	8.50	13.50	13.50
Ottumwa	8.50	9.00	12.00	15.00
Sheboygan	8.44	9.65	11.40	13.00
Sioux City	9.00	9.00	13.00	15.00

$22 Asked in Norfolk.

In the entire list of 29, from which information has been collected by the officers of the convention, only Canton, Ill., is now selling brick as low as Chicago.

One firm in New York, Charles Darrow's Sons, is selling for $16.50, according to the tabulation, and the Somers Brick Company in Atlantic City is asking $22. The price quoted from Norfolk is also $22. Epping, N. H., has a price of $18; Canton, O., $16.75; San Antonio, Tex., $14.75; and Fort Smith, Ark., and St. Joseph, Mo., $15.00.—Oscar E. Hewitt in Chicago Tribune.

OBITUARY.

James A. Hogan, of Chicago, Answers the Final Call.

THE MANY FRIENDS of James A. Hogan, Secretary-Treasurer of the S. S. Kimball Brick Co., of Chicago, were shocked to learn of his death which occurred at his home February 7th. Mr. Hogan was a robust man physically and his sudden demise can hardly be credited by his intimate friends. For many years he was a conspicuous figure in the brick and building industry of Chicago. His genial nature made him very popular. He was repeatedly elected president of the Builders Exchange and other similar local organizations. He was a prominent member of many fraternal organizations and was a leader in local republican organizations, but of recent months had devoted considerable of his time in support of Thomas Carey, a brick manufacturer and candidate for mayor on the democratic ticket. Mr. Hogan was a native Chicagoan, having been born there December 2, 1852. For many years he was a regular attendant at N. B. M. A. conventions and took an active part in the organization of the American Face Brick Association and that of the Face Brick Dealers. His cheery smile and hearty greeting was missed at the recent meetings. The entire membership mourns his loss.

James A. Hogan, Chicago, Ill.

HEAD OF NATIONAL FIRE PROOFING CO. DIES.

William D. Henry, one of the best known men in the fire proofing business died at his home in Pittsburgh, February 7. He had been ill about a week having suffered an attack of pleurisy, which developed into pneumonia and later in influenza pneumonia. Mr. Henry was a pioneer in the hollow tile fire proofing industry and quite an authority on building construction. He was president of the National Fire Proofing Company of Pittsburgh, Pa., a position he had held for many years, and also president of the National Fire Proofing Company, Ltd., of Canada. Mr. Henry was born in St. Paul, Minn., in 1863, but moved with his parents to Pittsburgh at an early age, and was educated in the public schools of Pittsburgh and the University of Pittsburgh. He first engaged in the manufacture of hollow tile in 1889, and organized the National Fire Proofing Company in 1899. In addition to his fire proofing interests he was a director in the First National Bank, the Anchor Savings Bank, the Diamond Forge & Mfg. Co., and the Gage Coal & Coke Company and a number of other concerns. He was prominent in the club and civic life of Pittsburgh, being a member of the Duquesne, Allegheny County, Edgeworth and Americus Clubs; the Civic Club of Allegheny County and a life member of the Exposition Society of Western Pennsylvania. He is survived by his wife, his father and mother, one brother and one sister.

SOMETHING NEW IN BRICKMAKING

Rough Texture Dry Press Brick.

A most interesting leaflet has been received from the Progress Press Brick and Machine Company, St. Louis, Mo., describing and illustrating a device for the manufacture of rough texture brick by the dry press process. This invention demonstrates anew the fact that necessity is the mother of invention. Being manufacturers of dry press brick exclusively and feeling the pressure incident to the popularity of rough texture brick which has made smooth brick for the time-being a drug on the market in many localities, the Progress Press Brick Company set about a means of meeting the emergency and this they have done through the device which is illustrated in their advertisement on page 112 of this issue. The device can be attached to any dry press brick machine and is a demonstrated success. The Progress Press Brick Company made nearly a million of rough texture brick with it during the past season. It is the modern way of making modern brick. The circular states that the new way of manufacturing rough textures does so with no increase in cost of production, using the same machines, same style of manufacture, same kilns, same shale and it will increase the output of the plant and increase the sales and increase the average selling price and INCREASE YOUR PROFIT. These are points well worthy of careful investigation. For further particulars write the P. P. B. & M. Co., 3205 S. Kingshighway, St. Louis, Mo.

"FOUND IN CHICAGO."

It is not unusual to find things happening in Chicago which indicate enterprise and progressiveness on the part of the Chicago clay workers. This time it is something that was found by the Common Brick Manufacturers' Association of America, domiciled at Chicago. They found in Chicago a demonstration of the fact that the brick sewer is the ideal sewer, and the findings have been set forth graphically in a booklet, with this question on the front cover: "Did you ever see the inside of a sewer?" Pictures and the descriptions thereof tell the story of how big brick sewers have stood the test of time better than those of concrete, and they make a a strong argument in favor of using brick for large sewer construction.

FIRE AT PLANT OF BALTIMORE BRICK CO.

The Baltimore Brick Company, Baltimore, Md., sustained a heavy loss from a fire which started in the boiler room due to an overheated boiler, the latter part of January. Lack of water pressure permitted the flames to gain great headway before the firemen could get the upper hand of the fire. Warren Griffiss, General Manager, estimated the loss at $25,000.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXXI. FEBRUARY, 1919. No. 2.

CURRENT COMMENT.

Did you go to Pittsburgh?

* * *

If not you missed a rare treat.

* * *

The next best thing is to be sure and read the complete verbatim report in the March 14 issue.

* * *

Among the worth-while things that the stay-at-home misses are those unrecorded buttonhole talks at the conventions.

* * *

The best direction for that thrift habit we have acquired is toward more and better home building, and don't forget to build with brick.

* * *

The price of brick will come down some, but let's not have it come down again to the point where there is no profit left for the man who makes them.

* * *

Scientific registration and control of heat in kiln burning is one of three great factors in the development of kiln efficiency and a higher grade product with a smaller percentage of waste.

* * *

Roofing is an important enough item in building operations to justify much more of the attention of the clay working industry than it has ever had in this country. On the other hand the composition roofing industry in this country is the greatest in the world. What is the answer?

* * *

If the towns and cities of the country will do their duty now in the way of new street paving it will not only make a good market for paving brick but it will make work for the unemployed and add to the civic pride and welfare of the community.

* * *

The fact that building costs more makes it all the more important to build with brick.

* * *

Surely there are enough people earnestly willing for building activity to make a way for it.

* * *

What we need for the next few years is not immigration so much as a little deportation of undesirables.

* * *

Old Man Winter may do some lingering in the lap of Spring, but he has sure played for the people and not for the coal man thus far.

* * *

This is admittedly to be the greatest year on record for advertising. In the great readjustment the way to find the trade you want is to advertise for it.

* * *

What is commonly termed investment building is not likely to make so much headway this year as home building, farm improvement, and factory and other business structures.

* * *

It is time to face squarely the question: If nations are interdependent upon each other to such an extent as to require a protective league, what about the individual man in business?

* * *

There are two plain duties before every brick manufacturer right now. One is to put some brick building propaganda to work, and the other is to put his plant to work and get a stock of brick ready for the building season.

* * *

Advertising, which served so well the war needs of the country, promises to serve equally well in the work of restoration of peaceful prosperity. It should be a great year in the quantity of advertising done, and in the returns for money invested in advertising space

* * *

A prominent yellow pine lumber concern made use of a full page advertising in the Saturday Evening Post recently just to advertise the trade mark with which they now brand all their lumber. This is a manifestation of enterprise as well as pride in the product offered. Will the brick boosters do likewise?

GOVERNMENT AID IN CONSTRUCTION DEVELOPMENT.

The Department of Labor at Washington is keenly awake to the fact that active building construction is essential to the full employment of labor, for in building construction and in the manufacture, preparation and marketing of the materials of construction there is more employment than in any other line of industry. It is easy enough to reason from this that if we are not to have industrial depression and idle labor we must have an active era in building construction. So a new Division of the Department of Labor has been created, known as the Division of Public Works and Construction Development, with F. T. Miller as Director.

This division seems to be starting out in a practical manner to aid construction development. There are two broad lines of effort in sight so far. One is the encouragement of more public work, more government building and more road making. The other is to assist and encourage private building by co-operating in making surveys and in educational propaganda to encourage private building.

Mr. Miller in one of his bulletins points out that money is not consumed in building operations, but passes from one hand to another, and still remains in the national banking system, yet leaves on its way permanent evidence of wealth in the form of structural improvement.

Also he points out that the increased cost of building material is only about half that of other commodities. This helps, and it should add to the boosting spirit of the brick folks.

BUILDING BOOSTERS.

During the latter part of January Indianapolis was the mecca for building material men of the state. There was a meeting of the Indiana Builders Supply Association, with from two hundred and fifty to three hundred in attendance; a meeting of the National Builders Supply Association, with approximately three hundred present; and a meeting of the Indiana Retail Lumber Dealers Association with over five hundred present. And they were all building boosters, plugging for better business and more building. Also they brought into action the slogan of "Partners"—that all men in a given business are in a manner partners and should work together for the common good. If there is anything in the saying that where there is a will there is a way, building operations ought to boom this year, for surely there is plenty of evidence that a multitude of people are willing. And it is evident that these gatherings are helping to solve the problems of the day and to stimulate trade activity all around.

FORTY YEARS OF FIRE LOSS.

Figures on the fire loss of the United States for forty years compiled by the Journal of Commerce shows a total for the period of $6,762,966,045. That is enough to more than cover the biggest Liberty Bond issue offered during the war period, but the most startling thing about it is that with the exception of 1906 when we had the great San Francisco disaster, the loss from fire was greater in 1918 than in any other year of the forty-year period. The total estimated fire loss for 1918 is given at $317,014,385.

These figures present a mighty strong argument for brick construction and for fireproofing generally in building operation to the end that we may put a stop to the loss at least so far as buildings are concerned. And there is not only the money loss, but often it is accompanied by loss of life which cannot be measured in dollars and cents.

Moreover, just to clinch the argument, there is the established fact that the brick buildings are better, more permanent and more worth while generally than the flimsy firetraps.

RESUMING THE TASK.

Not only is the country as a whole taking up again the tasks of peaceful pursuits, but there is a special application of the resumption of the task in the clay working industry. Before the war disturbed things it was quite a common practice among the brick yards to have a daily task unit, a goal which represented a fair day's accomplishment, and to strive to fulfill this task or even better it and set up a new record from time to time. Then when the shortage of men came and the industry was hampered all around the efficiency of the work fell off till tasks were things dreamed of rather than accomplished. Now, however, there is a general disposition to resume the tasks, to accomplish a day's work in the course of a day. This is one way that the trade may cut some of the top off high costs in brick making. It is well also to bear in mind that labor saving devices which will increase the task quantity and lessen the human effort required to accomplish it will effect cost saving as well as task enlargement.

FUEL QUALITY IN COAL.

The fuel quality of coal is affected by other things than the scientific rating of the coal as compared to other coals. Illustrative of this point a brick manufacturer who operates right in the midst of one coal mining center said that during the past year it required just a third more tonnage of coal to do his burning than before the pinch of war came. It was a difference in the fuel quality of the same kind of coal caused by leaving slate, shale and other impurities in the coal which in former years had been left behind in the mines or picked out at the screens. Maybe it was not so bad as this all around, but there was a decided falling off in the quality of coal generally which should not be tolerated now that there is plenty of coal available to meet all needs. The coal operators and the miners benefited through reducing the quality of the coal as well as by higher prices during the past year, and now it is time for the users of coal to have their inning. Insist upon clean coal that you may reduce the quantity necessary per thousand brick burned.

KLINGENBURG CLAY.

In a detailed report to the Bureau of Mines on the preparation of crucible graphite, by George D. Dub, there appears the following: "Before the declaration of war in 1914, all crucible makers without exception used clay imported from Klingenburg, Bavaria, in the manufacture of crucibles. Little work of any kind had been done with domestic or English clays. With the declaration of war, the source of clay was immediately cut off and the crucible maker was forced to turn his attentions to the utilization of clays other than the German. Although at first serious difficulties were encountered, the clay problem is now fairly well in hand, with the result that crucible efficiency compares favorably in service with prewar standards."

This is one of the things worth while scored by our war research work, and it is a thing that should be made permanent and not passing. Our clay resources are such that by research and combination we should be able to secure at home any clay or combination of clays needed in any and every branch of the clayworking industry. Let us cling to the domestic clays rather than to the Klingenburg importations.

CEMENT PRODUCTION IN 1918.

While cement fared somewhat better than brick in the point of demand during 1918, production of cement as well as of clay products was curtailed somewhat by war conditions. In fact cement production was cut down to the lowest point since 1909 according to a preliminary report of the U. S. Geological Survey.

The estimated shipment of Portland cement in 1918 amounted to 71,645,000 barrels, valued at $113,910,000, compared with 90,703,474 barrels, valued at $122,775,088 in 1917, a decrease in quantity of 21 percent. and in value of 7.2 percent. The estimated production in 1918 was 71,632,000 barrels, compared with 92,814,202 barrels in 1917, a decrease of 22.8 per cent.

According to the Survey report two new plants were put into operation during the year, one in California and one in Montana, while six established plants were idle, one each in California, Kansas, Michigan, Nebraska, New Jersey, and New York. The total number of plants operating was 114.

The average price per barrel ranged from $1.34 in Tennessee-Alabama-Georgia district to $1.91 in California. The average for the whole country was $1.59 per barrel, compared with $1.354 in 1917.

GOOD ROADS BOOSTERS TO MEET IN NEW YORK CITY, FEBRUARY 25-28.

The Ninth American Good Roads Congress and the Sixteenth Annual Convention of the American Road Builders' Association will be held at the Hotel McAlpin, Broadway and 34th St., New York City, February 25, 26, 27 and 28, 1919.

Many problems of the most vital interest and importance are at the present time confronting the road builders of the country. It is proposed, therefore, to bring together those most prominently identified with highway construction, transportation and maintenance for the purpose of considering the question of the hour.

SCHOOL BUILDING.

We are informed by a bulletin of the Department of Labor at Washington that contracts for 800 school houses, with a total cost of eighty million dollars, that were held up by the war may now go forward. In fact the disposition of the authorities is to urge this form of building now even though the cost may seem a bit high as it will help furnish employment, and the burden of extra cost is a small matter in its wide distribution. All this is very suggestive of an active year in school buildings. It is also a hint to the clayworkers to get busy, for the right idea in school building is to make them safe and permanent, to build with brick. Let us get busy at driving this idea home while helping to encourage the erection of more and better school buildings.

NEBRASKA BRICK AND TILE MANUFACTURERS TO MEET AT LINCOLN, MARCH 4-6.

The annual meeting of the Nebraska Association of Brick and Tile Manufacturers will be held March 4th, 5th and 6th. An interesting program is in course of preparation and it is anticipated that practically all of the brick and tile men of that section will be in attendance. For further particulars address Frank I. Ringer, Secretary, 9 Orpheum Theatre Bldg., Lincoln, Nebr.

NEW JERSEY MEN BEFORE COMMUNITY LABOR BOARD

Clay men were largely represented at a meeting held at Perth Amboy in January with the Community Labor Board at which they sought to devise some means of securing employment for returning soldiers and sailors. It would appear from what was said at that meeting that few see any serious difficulty in the way of securing such employment as the incoming discharged men may desire. Many of them who left good places to join the colors will find their former places open for them when they return. Some of those present told of specific places for those who are returning as they are ready to fill them. The clay men present included these representatives of well-known large firms:

August Staudt, Perth Amboy Tile works, past president of the New Jersey Clay Workers' Association; M. Stevens, of the American Clay Products Company, South River; J. Ross Valentine, of M. D. Valentine and Brother, Woodbridge; S. H. Schmidt, Didier-March Company, Perth Amboy; Victor W. Main, National Fire Proofing Company, Perth Amboy; M. Jacquet, American Enamel Brick & Tile Company, South River; M. Moroso, Alignum Fireproofing Products Company, Sayreville. It will be observed that some of those present were representative of leading firms in the clay business and their assistance can be counted upon to supply returning soldiers and sailors with jobs as soon as they are ready to fill the places. If it helps solve the labor problem for the Raritan district these large manufacturers of clay products will be pleased and will be relieved of some of the burdens which have weighed upon them heavily, in common with many others, for the past year.

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WANTED.
Experienced men, plant making silo and hollow tile, burners, setters, and wheelers, continuous and down draft kilns, steady employment, good wages, married men preferred. Address,
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Care Clay-Worker.
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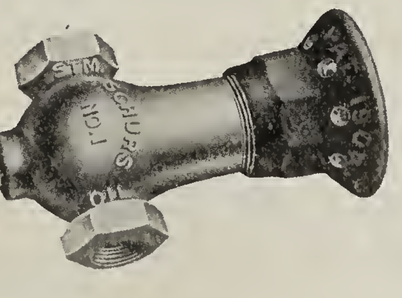

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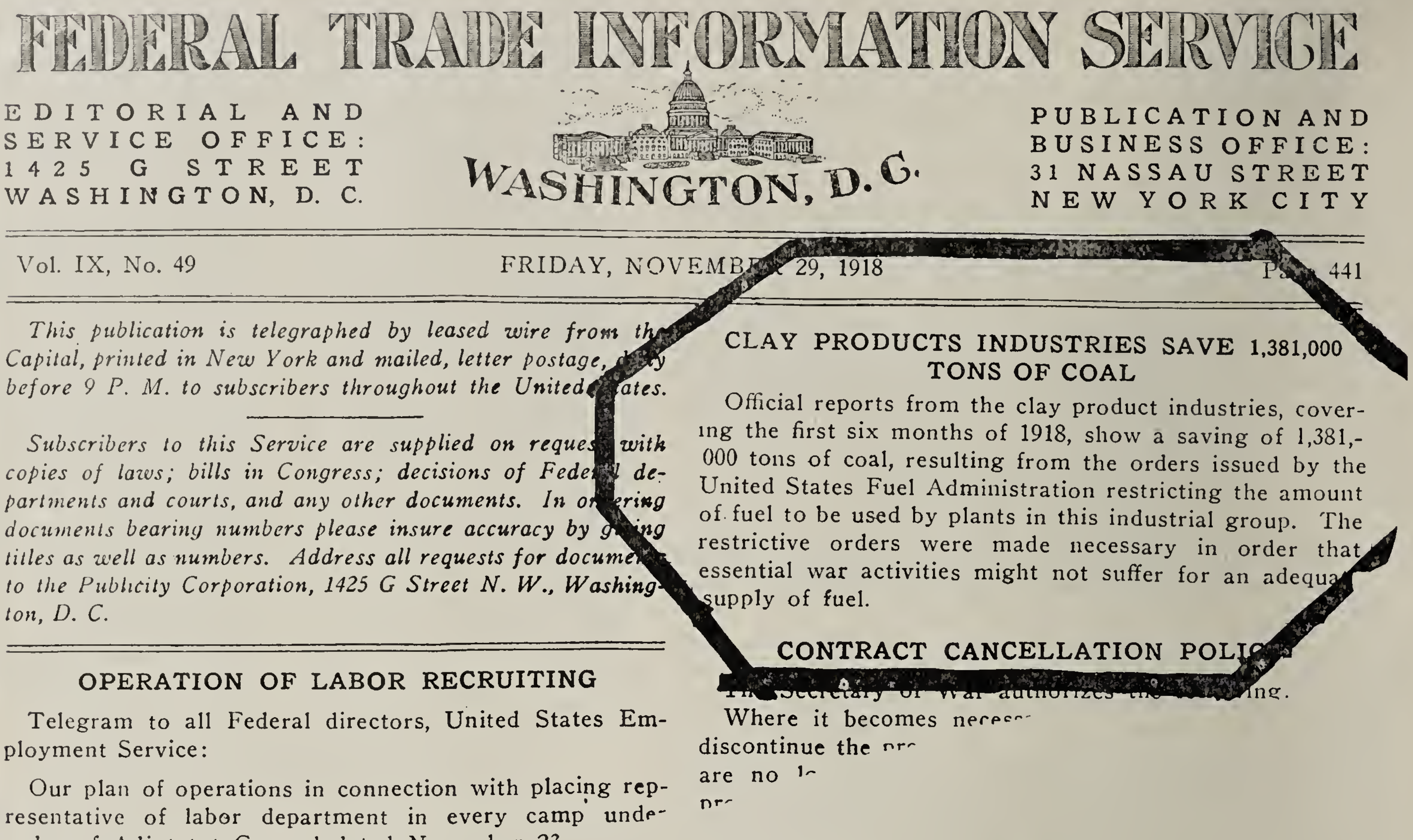

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Vol. IX, No. 49 FRIDAY, NOVEMB 29, 1918 P 441

This publication is telegraphed by leased wire from th Capital, printed in New York and mailed, letter postage, d y before 9 P. M. to subscribers throughout the United ates.

Subscribers to this Service are supplied on reques with copies of laws; bills in Congress; decisions of Fede l departments and courts, and any other documents. In o ering documents bearing numbers please insure accuracy by g ing titles as well as numbers. Address all requests for docume to the Publicity Corporation, 1425 G Street N. W., Washington, D. C.

OPERATION OF LABOR RECRUITING

Telegram to all Federal directors, United States Employment Service:

Our plan of operations in connection with placing representative of labor department in every camp unde order of Adjutatnt General dated November 23 for the establishment by this servic turning soldiers in every cit being discharged seek emplo Task

CLAY PRODUCTS INDUSTRIES SAVE 1,381,000 TONS OF COAL

Official reports from the clay product industries, covering the first six months of 1918, show a saving of 1,381,000 tons of coal, resulting from the orders issued by the United States Fuel Administration restricting the amount of fuel to be used by plants in this industrial group. The restrictive orders were made necessary in order that essential war activities might not suffer for an adequa supply of fuel.

CONTRACT CANCELLATION POLI

Th Secretary of War authorizes the ing. Where it becomes neces discontinue the pr are no l pr

WHAT THE WAR DID TO THE CLAY INDUSTRY

The above extract from the Government Report shows that the Clay Industry saved 1,381,000 Tons of coal in six months.

To save this coal the Government cut down the production of clay products as follows.

Face Brick, Common Brick, Paving Brick, Terra-Cotta, Roofing Tile, Floor Tile, Wall Tile and Sanitary ware, fifty per cent. Hollow Tile, Drain Tile and Sewer Pipe, twenty-five per cent. Stone Ware fifteen per cent.

In other words by making practically THE ENTIRE CLAY INDUSTRY close down for HALF A YEAR a saving was made of 1,381,000 Tons of coal.

The plant equipments representing millions upon millions of capital was made idle half the time.

Thousands upon thousands of employes were made idle.

The value of the coal was the least item of the total involved.

The Clay Industry did this without complaint to help the government, but the loss to the Industry was terrific.

If the war had not made the saving necessary the Clay Industry would have resented bitterly the restrictions necessary to make the saving and quite justly so.

The closing of the Clay Industry might have been avoided.

Figures are available showing the coal consumed in 64 Haigh Continuous Kilns in daily operation.

Based on this reliable information, of work actually done, it is shown that if all the brick made in the United States were burned in Haigh Kilns the saving in coal would be 2,600,000 tons each year. That means that the burning of just brick wastes every year twice as much coal as was saved by closing ALL CLAY PLANTS FOR HALF A YEAR.

And this is the saving in burning just brick. Much more would be saved from burning other clay products in Haigh Kilns.

This waste is going on year after year.

If it's worth while being made to stop it for the benefit of the Government, why not stop it permanently for YOUR OWN BENEFIT.

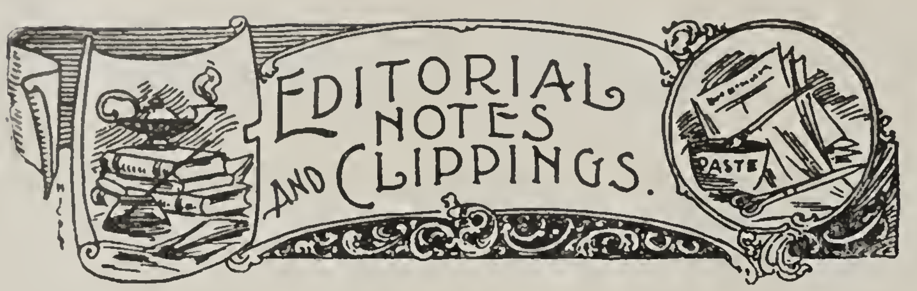
The Haigh Kiln also improves your product, saves a half of the kiln labor, increases the per cent of No. 1 ware and keeps the output even from day to day. It's a pacemaker and governor for the plant. You use the waste heat for drying too.

It costs no more to build a Haigh Kiln than the ordinary kiln and it pays for itself in a few seasons. Let us show you what it will save you.

Printed Matter and Further Particulars Free.

THE AMERICAN CLAY MACHINERY CO.

BUCYRUS, OHIO



The Allegheny Brick Company of Olean, N. Y., has filed articles of dissolution.

The Grymes Construction Co., Hattiesburg, Miss., advise us that they are in the market for a second hand soft mud brick machine.

The plant of the Albion Shale Brick Company, Albion, Ill., which had been closed down for some time is again running on a full time basis.

The Clermont Brick & Tile Works, Clermont, Iowa, was destroyed by fire recently. The loss is quite heavy and the insurance carried was very light.

The Elk Clay Mfg. Co., with works at Daguscahonda, St. Marys and Lock Haven, Pa., has taken option on a tract of land near Brookville, Pa., with a view of establishing another plant.

Robert L. Steele, Sr., of Rockingham, N. C., advises us that he is in the market for machinery for making electrical supplies, including insulators, tubes, etc., used in telephone and telegraph construction.

The Brazil Block, Coal & Clay Co., has been organized at Brazil, Ind., with $10,000 capital stock. The officers of the company are J. J. Bucklin, president and general manager; Dr. A. A. Spears, vice-president; Edward Nolte, secretary and Eugene Wardlaw, treasurer.

J. W. Dailey of Chillicothe, Mo., will become general manager of the North Iowa Brick & Tile Company, Mason City, Iowa, succeeding Capt. E. A. Hults, who tendered his resignation recently. Mr. Dailey has spent his entire life in various departments of the clayworking business and is thoroughly experienced and capable to fill the position.

The Currie-Finch Brick & Lumber Company of Jackson, Miss., has been organized with $30,000 capital stock. T. K. Currie was formerly president of the Central Lumber Company and Henry P. Finch, was for many years associated with the Bullard Brick Company. Work on the plant which will be equipped with modern machinery and appliances will be pushed to completion as rapidly as possible.

At the annual meeting of the stockholders of the Hydraulic Press Brick Company of St. Louis, Mo., January 28, the following directors were elected: George A. Bass, Ralph Simpkins, G. L. Kendall, J. Howard Holmes, F. G. Eaton, Onward Bates, M. F. Watts, J. F. Shapleigh and George F. Bakers. At the directors' meeting which followed that of the stockholders, officers for the year were elected as follows: President, George A. Bass; Vice President, Ralph Simpkins; Secretary and Treasurer, George F. Baker; Assistant Secretary and Treasurer, A. B. Ames.

Lucia Washburn, of Haverstraw, N. Y., one of the best known brick manufacturers along the Hudson river, died suddenly, February 3, while walking on the street in Haverstraw. Mr. Washburn was 52 years of age and unmarried. He had a wide acquaintance throughout the state and was one of the most highly respected business men of Rockland county. He was a member of the U. F. & J. T. Washburn Company of East Kingston, also was affiliated with the Greater New York Brick Company of which he had just been elected president. A singular coincidence of his death is that his father passed away in the same manner, when 62 years old, while talking on the street to a friend.

Wilson A. Phillips writes that he has just started a brick and clay products selling agency, with offices in the American Mechanics Building, Trenton, N. J.

The Kentucky Fire Brick Company, with plants at Portsmouth, Ohio, Haldeman and Fire Brick, Ky., has increased its capital stock from $175,000 to $375,000.

Charles A. Rawson, one of the best known clayworkers of Iowa, being president of the Iowa Brick & Tile Company, Des Moines is serving in France in Y. M. C. A. work.

The Columbia-Panama Coal Co., of Manchester, Ky., will establish a brick plant at that place. They are in the market for brick machinery, and will appreciate catalogues, etc.

The Carbon Hill Clay Company has been incorporated to establish a plant at Carbon Hill, Ohio. The incorporators are Noah F. Andrews, H. E. Downour, Charles Schultz and others.

I. A. Hunter, manager of the Pawhuska Brick & Tile Company, Pawhuska, Okla., has been busy of late overhauling the plant and getting it in shape for the big season just ahead.

The Ashland Fire Brick Co., Ashland, Ky., has opened a sales office at 29 South La Salle Street, Chicago. S. P. Adams, an experienced fire brick man, has been placed in charge.

The Lavino Refractories Company of Philadelphia, Pa., is erecting a plant near Reading, Pa., to manufacture fire brick and furnace linings, from crushed ganister rock. This will be a six kiln plant.

L. W. Post, founder of the Post Brothers Tile Company, at Commerce, Mo., and for many years president of the concern, died at his home in Commerce, Thursday, January 23. Mr. Post was seventy-two years old and took an active part in business until the very last.

The Council of Jamestown, N. Y., has under consideration the purchase of the plant of the Jamestown Shale Paving Brick Co., and establishing a municipal enterprise with a view of not only making all the paving brick the city needs, and also giving employment to returned soldiers.

F. A. Wilkie, treasurer of the Boll-Mark Pottery of Trenton, N. J., suffered a fractured skull when he fell through an opening in the floor of a new part of the plant. He was taken to the hospital where he died later in the day. He was one of the best known potters in that part of the state. He is survived by his wife.

Charles F. Clippert & Bros. Brick Co., Detroit, Mich., was recently elected president of the Builders & Trades Exchange, Detroit, Mich. Mr. Clippert attended the Pittsburgh convention accompanied by his wife, two daughters and one son. The latter has just been released from the army, having been located in Texas in the Aviation branch of the service.

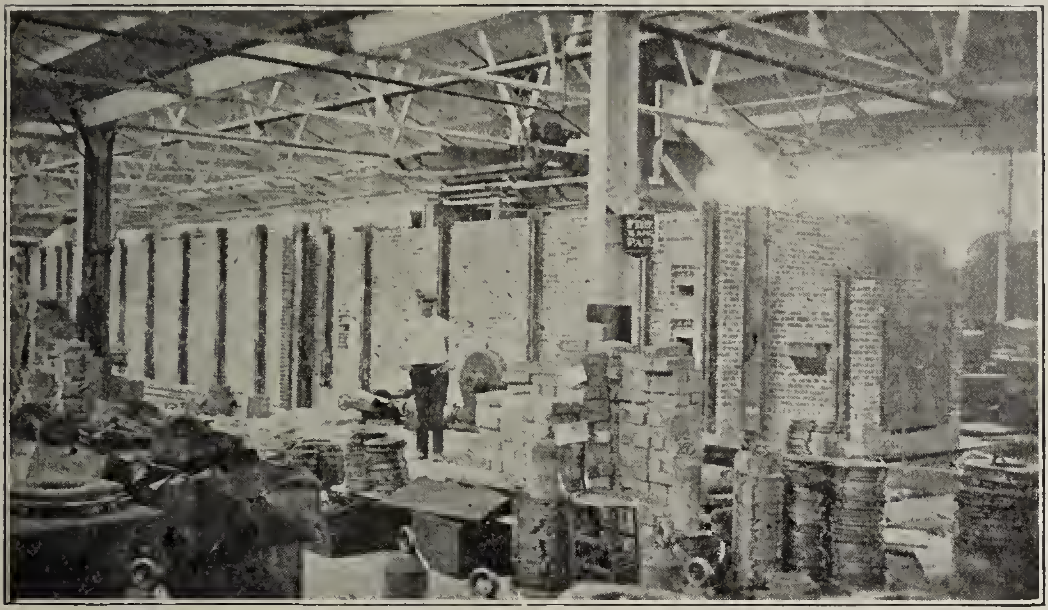
E. W. Down until recently connected with E. M. Freese & Co., of Galion, Ohio. with headquarters at Pittsburgh, Pa., has joined the forces of the Stevenson Co., of Wellsville, Ohio, and will have charge of the territory between Pittsburgh and Chicago. Mr. Dow is one of the men who was virtually brought up in a brick yard and as he has been "on the road" for the last twenty years or more, has a wide acquaintance among the clayworkers of the country.

The Walter A. Zelnicker Supply Co., St. Louis, Mo., dealers manufacturers of Zelnicker's double clutch car mover, car door rollers, switch locks, sand drying stoves, etc., and dealers in new and second hand tanks, has just issued a catalogue which is devoted exclusively to the line of tanks

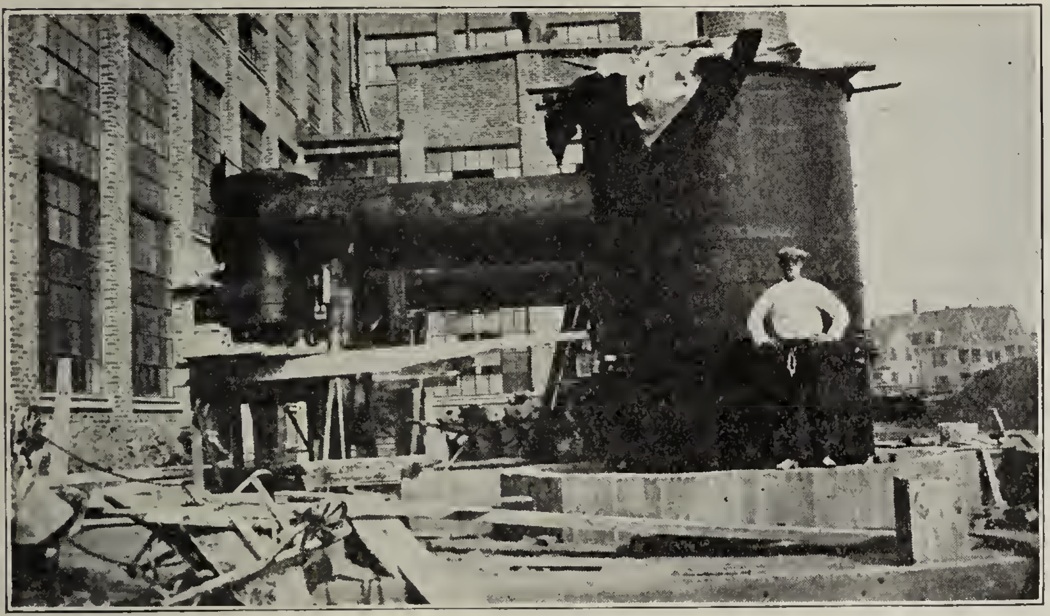
(Continued on page 176.)

DIDIER MARCH

Railway Tunnel Kilns



A Didier March Kiln



Construction International Producers

USE

10

International Producers

Why Not Adapt

International Producers

and

Burners

To Your Brick, Tile or Pottery Kilns

International Clay Machinery Co.

DAYTON, OHIO

EDITORIAL NOTES AND CLIPPINGS—Continued.

handled by them. The catalogue is known as "Bulletin 259" and will be mailed to any one desiring it.

C. C. Stratton, at one time one of the prominent brick manufacturers of Macon, Ga., died in that city recently at the advanced age of seveny-two. His death was caused by pneumonia.

At the recent annual meeting of the stockholders of the Alliance Clay Products Co., Alliance, Ohio, the former board of directors was re-elected, which in turn re-elected B. F. Weybrecht, president and J. B. Wilcox, secretary-treasurer and general manager.

The A. T. Small Brick company, Macon, Ga., have filed a petition for a charter. The company has a capital stock of $135,000. The petitioners are A. T., C. C. and A. T. Small, Jr., and H. H. Smith. The company has been operating a brick yard near Tuft Springs for several years.

Warren B. Ferris, of Columbus, Ohio, has purchased the brick plant of William Redett at Fredericksburg, Ohio. Mr. Ferris will at once overhaul the plant, and make the necessary improvements and repairs preparatory to running the plant to full capacity the coming season.

Chester Hart, for many years at the head of the Hart Brick Mfg. Co., Taunton, Mass., died the latter part of January. Mr. Hart was fifty-eight years old and interested in a number of business activities of the city. He was prominent in general civic betterment organizations, and in the Red Cross and other war time interests.

The Collingwood Brick Co., of Toledo, Ohio, has changed its name to the Collingwood Brick & Clay Co., and increased its capital stock from $30,000 to $200,000. W. A. Howell will continue as secretary and general manager of the company which will make a number of improvements and additions to its plant early in the spring.

The reorganization plan of the John B. Rose Co. and the Rose Brick Co., of Roseton, N. Y. and New York City, contemplates the formation of two companies; The Marlborough Sand & Gravel Corporation, which is to acquire the business and assets of the John D. Rose Co. and the Roseton Brick Corporation, which is to acquire the business and assets of the Rose Brick Co.

The McKnight Fire Brick Co., Los Angeles, is contemplating the erection of a new manufacturing plant in the vicinity of Bakersfield, Cal.; the selection of a site is now under way, with consideration to a location at Portersville. The plant will specialize in the production of magnesite brick and will be built in individual units, the first to cost about $10,000. J. L. and J. H. McKnight head the company.

Two men were burned and badly bruised as the result of explosion at the plant of the American Clay Machinery Co., Bucyrus, Ohio, recently. The two men who were employed on the night shift, thought the oil in a 6,500 gallon fuel oil storage tank was getting low, and lowered a lantern into the tank in the way of investigation. The oil may have been low, but the explosion that followed ended the investigation, the men were hurried to the hospital, and needless to say the lantern has not been recovered. Here is a good theme for Frank Hopley's poetic muse.

Death came almost instantly to William L. Horton, general superintendent of the Laclede-Christy Clay Products Co., St. Louis, when an automobile in which he was leaving the works was struck by a Missouri Pacific train. It is supposed Mr. Horton's view of the train was obstructed by some buildings and he evidently did not hear the approach of the train. The automobile was completely demolished and Mr. Horton was rushed to a hospital but died on the operating table within half an hour after the accident occurred. Mr. Horton had been with the Laclede-Christy Company for twenty-six years having worked up from the position of a clerk to that of general superintendent of the company's plants four years ago.

At the annual meeting of the directors of the Champlain Brick Company of Mechanicsville, N. Y., the following officers were elected: President, E. J. Norman; Vice President, E. D. Griffin; Secretary and Treasurer, J. E. Haskins; Inspectors of Election, J. G. Rogers and W. E. Ten Eyck.

H. J. Struve, of Deshler, Neb., writes that there is a good opening at that place for a brick plant. A "Greater Deshler" movement is under way, in which a great many brick will be used and there is no plant within seventy-five miles. The town will aid in financing the proposition, and what is wanted is a man with experience in the manufacture of brick to take charge of the project.

After being in continuous operation for many years, the works of the Altoona Brick Company, Altoona, Pa., was closed down the first of February for an indefinite time. The Company has been able to keep the plant going during the period of the war on government orders, but the management has decided to close the plant now until their business generally justifies running to full capacity.

J. Parker Fiske, for many years at the head of the New York branch of Fiske Brick Co., Boston, Mass., was a visitor at the William Penn, Convention week. Possibly a farewell visit, for he has withdrawn from the brick business altogether, but he says he has always held the theory, that it is hard for a "brick man ever to get all the mud scraped off his shoes." Mr. Fiske was a power in the brick world and we bespeak success for him in whatever line of endeavor he enters.

The Michigan State Prison authorities of Jackson, Mich., are building a new brick and tile plant at Onondaga, Mich., which will be operated by prison labor. Lawrence Lorenson, a brick and tile manufacturer of many years' experience will be manager of the plant and is now in charge of building the kilns. Much of the labor in constructing the plant was done by the prisoners. About sixty men will be given employment and a large dormitory has been built in which to house them. Two commodious buildings will be used to house the men, one being the kitchen and dining room with a hall connecting with the main building, which will be given over entirely to sleeping quarters.

The Keller Brick Co., of Akron, Ohio, with all its property, has been transferred to the Duro Brick Manufacturing Co., a new company, which is capitalized for $200,000. Its officers are: George R. James, president; I. S. Myers, vice president and treasurer; N. J. Long, secretary and general manager; directors, George R. James, I. S. Myers, M. S. Long, F. W. Jones, V. W. Shear, O. A. Alspaugh, T. W. Kimber, N. J. Long. It is understood that the new company has in contemplation a large extension by which to increase the production of the plant from 40,000 bricks per day to 80,000.

The Greenford (Ohio) Tile & Clay Company's plant has been purchased by John Kopp of the Evans Clay Mfg. Co., of Uhrichsville, Ohio and Lewis Kopp of the Cincinnati Clay Company. The name of the concern has been changed to the Kopp Klay Ko., and Mr. Kopp will devote his entire time to the management of the Greenford plant. C. T. Bliss will succeed Mr. Kopp as manager of the Cincinnati Clay Company. Mr. Bliss who was formerly associated with the Buckeye Clay Co., of Uhrichsville, will have headquarters in the First National Bank Building, Cincinnati.

33 PLANTS INSTALLED
The UNDERWOOD G A SYSTEM

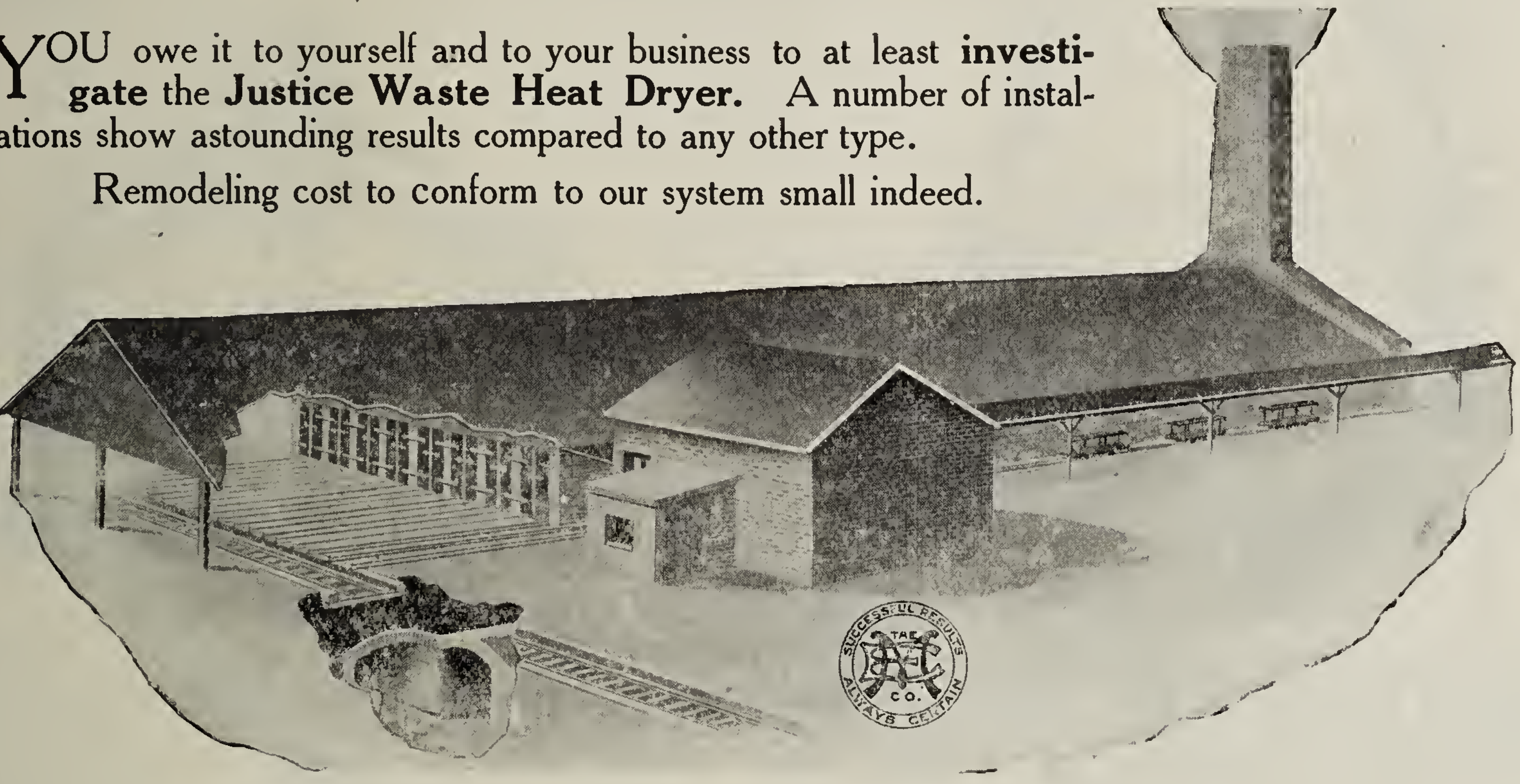
To Date and are Burning Terra Cotta, Porcelain Electric Ware, Fire Brick up to 2,800 F, Pavers, Face Brick, Commons, Drain Tile, Roofing Tile, Hollow Ware and Fire Proofing.

Results Are Enormous. Advantages Great.

WHY NOT YOU?

YOU owe it to yourself and to your business to at least **investigate** the **Justice Waste Heat Dryer.** A number of installations show astounding results compared to any other type.

Remodeling cost to conform to our system small indeed.



The Manufacturers Equipment Co.

Dayton, Ohio, U. S. A.

Direct Selling Agents,
J. C. STEELE & SONS,
Complete Line of Clay-
Working Machinery.

PERRY & DUKE,
Canadian
Representatives,
841 College St.,
Toronto, Ont., Canada.

BURNING CLAY WARES.

(Continued from page 143.)

The kiln is necessarily narrow to insure a substantial muffle construction. The construction is simple and it has been proven practical to reduce the thickness of the muffle walls to 1½ inches.

A down-draft, or one might call it an up-and-down-draft, muffle kiln is illustrated in Fig. 112 which shows the plan through the lower return flues and that above the muffle floor. Fig. 113 is a vertical section through a furnace on one side and a doorway on the opposite side. The latter shows the stack within the central muffle flue but this construction is not essential. After the gases have reached the inlet at the base of the stack, they may be drawn off through the stack as shown, or drawn down into a central well, and to an outside stack or fan through an underground draft flue. The situation is the same as that of a central stack and central well open fire periodic downdraft kiln where either plan of removing the gases may be used, and both methods are used in the muffle construction.

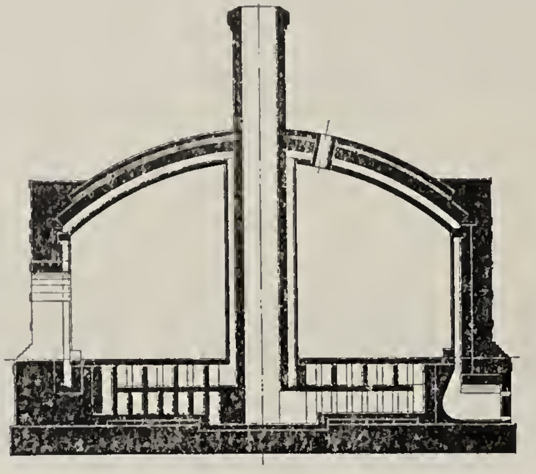


Figure 113.

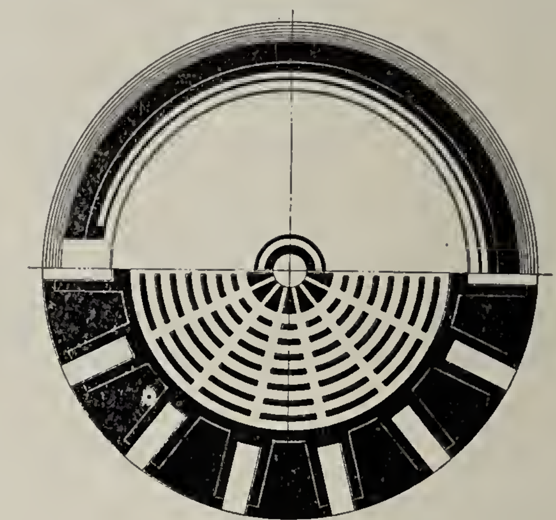


Figure 112.

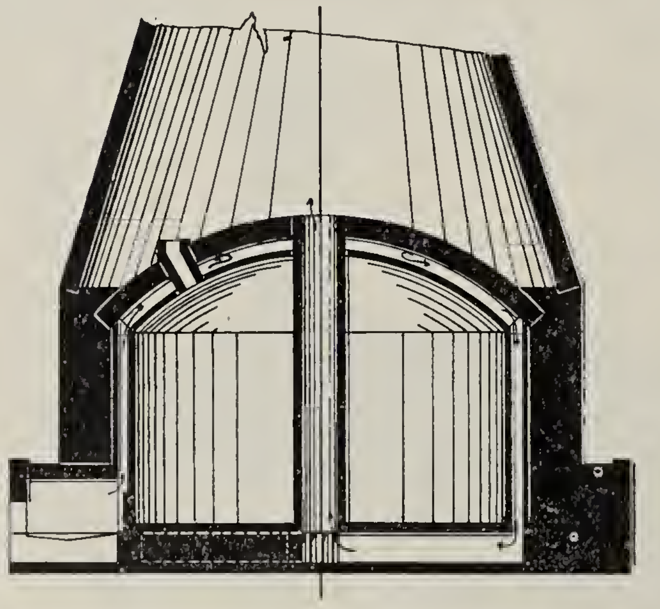


Figure 114.

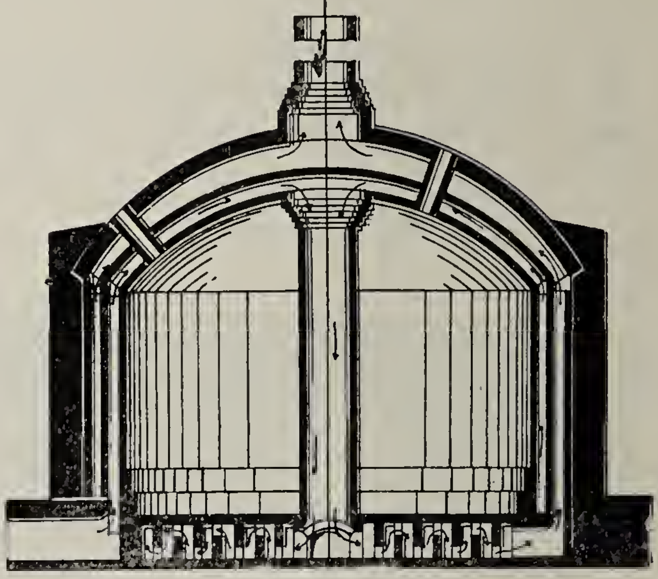


Figure 115.

The circular feather floor walls shown in the plan provide direct flues to the center but above the diaphragm these walls are staggered as shown in the vertical section, and the gases in their passage from the center to the circumference must take a sinuous course before dropping into the lower direct flues. This insures full contact with the muffle floor and a maximum absorption of heat. The stack is shown as a continuous structure from the kiln bottom but the usual method is to independently support the portion of the stack above the kiln crown as previously noted.

The movement of gases from the furnaces is up the annular space between the muffle and the kiln wall, then over to the central annular space between the muffle and stack, down which they pass to the flues below the floor, spread out to the circumference of the floor flues and are drawn down and back to the stack or well through the lower flue system.

A long flame coal by means of which we get more or less gas combustion throughout the circuit, is essential in securing uniform burns.

It is a question whether the central stack is as good as the central well with underground draft flue. It insures strong draft almost from the beginning of the burning, and, as shown in the discussion of stacks, does not require the height of an outside stack. On the other side of the question, it decreases the size of the muffle or increases the diameter of the kiln for any given size of muffle. The chief point, it seems to us, is that the gases have given up their heat value when they enter the lower flues, and as they rise through the stack, having a lower temperature than the descending gases in the annular space between the stack and the muffle, there will be a flow of heat from the hotter gases through the stack wall and this heat will be taken up and carried away by the stack gases. In other words it seems to us that after the gases have ceased to be valuable for heating the muffle, that it is a mistake to bring them again in touch with it where the only effect would be to lower the temperature of the muffle gases.

Another up-and-down-draft muffle kiln is shown in Fig. 114. In this kiln the annular space between the muffle and kiln wall is divided into sections, up in front of the furnaces as shown in the section through the furnace, and down between the furnaces. The gases from the furnaces will rise and be projected into the crown space, then caught and be drawn down through the alternate flues between the furnaces, pass under the floor, up the central flue and into the stack.

Fig. 115, shows two half sections of a more complicated kiln with practically a double annular space. The inner space into which the furnaces deliver their gases is a complete circle but the outer space is from furnace to furnace—practically broad flues between the furnaces. The movement of the gases is indicated by the arrows.

To Be Continued.

One More Step Ahead!

"Pyrometer-Burned-Brick"

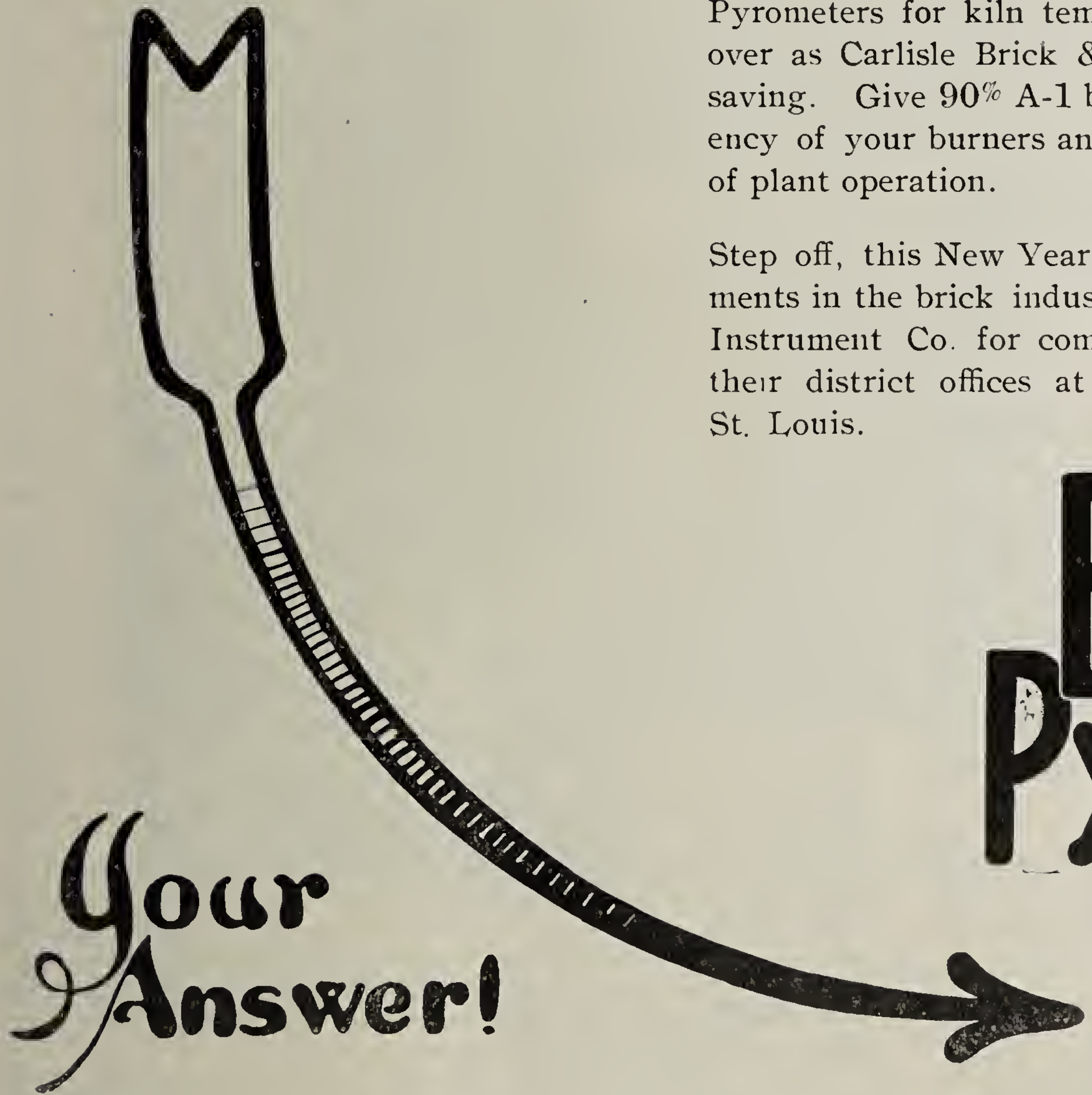
The Only Way To Keep Burners Awake

"The Recording outfit has paid for itself many times since we installed it." Says Carlisle Brick & Tile Co., Carlisle, Iowa, Dec. 3, 1918.

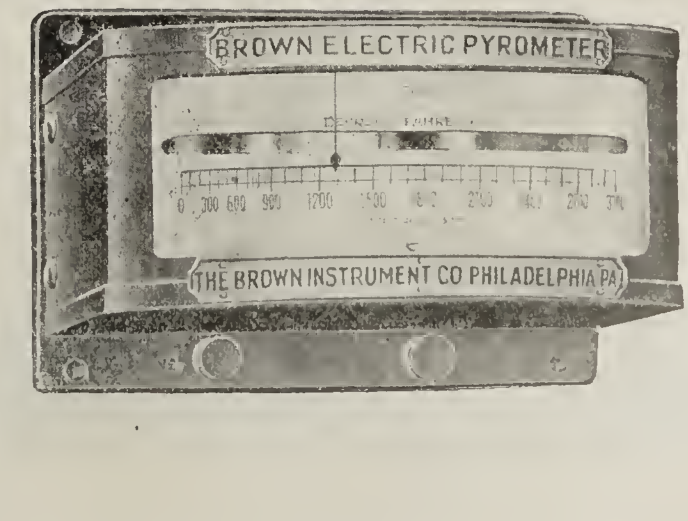
Brick men! Face facts this New Year, 1919. Let it mean to you greater output and profits. You do not have to experiment. Cash in on the past practical experience of the largest and best known brick plants.

Pyrometers for kiln temperature control save their cost many times over as Carlisle Brick & Tile have found. They pay a profit in fuel saving. Give 90% A-1 burns instead of 50 to 80%. Increase the efficiency of your burners and give a chart record for your Superintendent of plant operation.

Step off, this New Year by investigating one of the foremost developments in the brick industry—Pyrometer Control. Write The Brown Instrument Co. for complete information, to Philadelphia or one of their district offices at New York, Pittsburgh, Detroit, Chicago or St. Louis.


Your Answer!

Brown Pyrometers



"3 men and 1 Erie provide our shale"

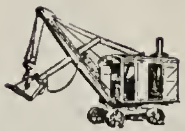
"We are tickled to death with our ERIE Shovel—could not run our plant without it.

"We have one operator on the machine; one pit man who looks after the spotting of cars; one general utility man. These three men and the ERIE easily give us enough shale to keep the plant supplied—enough for 100,000 brick a day."—*D. D. Evans, General Mgr. WEST VIRGINIA PAVING & PRESSED BRICK CO., Huntington. W. Va.*

The above is a good record, because the W. Va. Paving & Pressed Brick Co. has an unusual shale which is very hard to dig. At other plants, where the material is not so difficult, two or three men and one ¾-yd. ERIE Shovel are getting out material for 150,000 to 200,000 brick. For smaller capacities the ½-yd. ERIE is often most economical.

And the ERIE is RELIABLE. Built far stronger than the usual standard of steam-shovel construction. You are sure of a steady supply of raw material.

The W. Va. Paving & Pressed Brick Co. went into the steam-shovel question very thoroughly before buying their ERIE They carefully compared different makes of shovels. They wanted to be SURE to get the right shovel.



We advise you to be just as careful Decide the steam shovel question on its merits. Get all the facts, and then pick the best machine.

We will be glad to send you our Bulletin W. Write for a copy.

BALL ENGINE CO., Erie, Pa.
Builders of ERIE Steam-Shovels and Locomotive Cranes; BALL Engines.

ERIE Revolving Shovels BALL Engine Co. Erie, Pa.

Written for THE CLAY-WORKER.

EVANSVILLE AND SOUTHERN INDIANA BRICK AND BUILDING NEWS.

BUILDING OPERATIONS in Evansville and southern Indiana have shown some improvement since the close of the European war, although things are not as lively as it is expected they will be in a month or two. It is not believed that building will materially pick up until after the Fifth Liberty Loan has been "put over" in April. Brick and tile manufacturers say their trade has not been on the boom order and many of the plants are being operated on part time and in some instances the factories are closed down. But everybody is hopeful and the feeling prevails that there is going to be a great deal more building in southern Indiana than last year. In fact, reports received from many towns in southern Illinois and western and central Kentucky indicate that building operations are going to take on new life after the middle of April or the first of May. In fact some contracts already have been let. In Evansville several factories have planned additions. The Wertz-Kramer Furniture Co. will build an addition of brick that will have 14,000 square feet floor space and when this addition has been completed more workmen will be employed. The Faultless Castor Company of Evansville also will build a new addition. Builders and contractors in Evansville express the belief that there will be considerable residence building during the coming summer and fall. In the opinion of manufacturers and dealers there is going to be no reduction in prices of building materials this year and they believe that on some items there will be slight increase in prices from time to time. Materials of many kind are scarce and hard to get. Brick manufacturers say that in their opinion building will be well under way by the last of the year and that by the beginning of 1920 things ought to be humming and that from that time on for a period of at least five years they believe the country will enjoy the greatest building boom in its history. Many of the brick manufacturers report considerable stock of brick on hand.

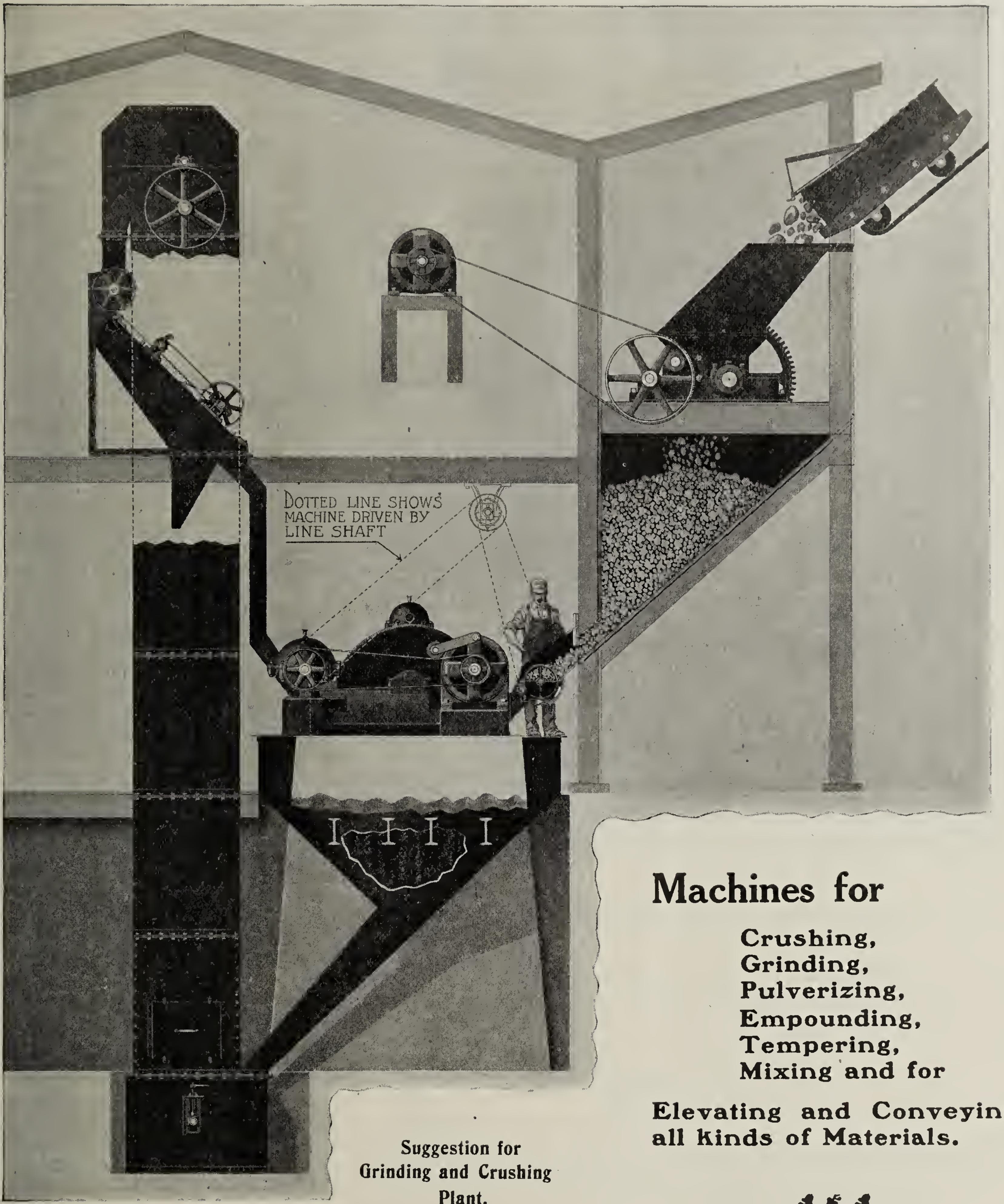
The Huntingburg Pressed Brick plant at Huntingburg, Ind., which has stood idle during the absence of G. C. Landgrebe, who was in the army in training at Lafayette, Ind., has resumed operations and is now running night and day. Since the return of Mr. Landgrebe, two kilns have been finished and a third one is now being burned, all under the new gas system of burning that was installed just prior to the departure of Mr. Landgrebe and which could not be tried out at that time. The system is all and in fact more than was claimed for it. More and better brick can be turned out in less time than formerly. To burn a kiln of brick under the new system requires fewer hours. Under the old system it required a week or more plus much labor and vexation. Mr. Landgrebe has had the yards surrounding the buildings and kilns bricked, making it pleasant for the crews to work. The company is expecting a long and prosperous season. A number of orders that were held up on account of the plant's suspension are now being handled promptly.

Henry C. Kleymeyer, manager of the Standard Brick Manufacturing Co., and one of the leading public spirited citizens of Evansville, has been elected a director of the Evansville Manufacturers' Association to serve the ensuing year. Mr. Kleymeyer also has been re-elected a director of the Old State National Bank at Evansville, which position he has ably filled for the past several years.

The various pottery plants at Evansville are being operated steadily and the business outlook is very encouraging at this time and it is believed the plants will be able to run on full time all of the present year.

John Williamson, formerly employed at an Evansville pottery plant was severely wounded in action in France late in October, according to word received by relatives at Evansville. He was with the United States infantry and had been in France for several months.

A HOOSIER.



Suggestion for
Grinding and Crushing
Plant.

Machines for

Crushing,
Grinding,
Pulverizing,
Empounding,
Tempering,
Mixing and for

Elevating and Conveying
all kinds of Materials.

* * *

Steam Presses for Making Sewer Pipe, Drain Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO., General Office and Works, Wellsville, Ohio

Engineering and Western Sales Office, Monadnock Bldg., Chicago, Ill.

Look for the Green Edge and Gandy Trademark!

That's the only caution necessary to sound to buyers who want to be sure they are getting gunuine **Gandy** original stitched cotton duck power and conveyor belts.

All **Gandy** BELTING is red in color, and the bright green painted edge and trademark are plainly visible.

These two distinguishing marks are on every *Gandy* BELT. They're proof of our own faith in our product—our bond to you that we stand back of every inch of *Gandy* BELTING guaranteeing to the limit the material and workmanship, and providing engineering service that insured the very best results.

Gandy gets all the pull from the pulley.

Look for the green edge and *Gandy* trademark!

Yours for service,
"On-the-Job" *Gandy*
Service Manager.

THE GANDY BELTING COMPANY
749 West Pratt Street BALTIMORE, MD.
New York Branch, 36 Warren St.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

CONSIDERABLY more inquiry is reported by brick men in different parts of the state. This is not the same as saying sales have increased, but where builders, and others have entirely neglected the market for a year or more inquiry is welcome. Many hope that the present inquiry betokens much improved business as soon as the present readjustment proceeds far enough to warrant any considerable building development. Prices are held firmly at $17.50 to $18.50 on the job in and about Paterson. But this is largely a nominal figure since with the exception of some relatively small repair jobs very little is doing in any department of structural work. In Newark prices have ruled around $15.00 on the job. Some have been quoted as high at $16.50 and others as low as $14.75, but around $15.00 is a fair figure for most of the sales in that vicinity. More business is in progress there than for some months and the outlook indicates a good deal better trade in the near future. Jersey City takes the New York price and is quoted $15.00 flat. Some shading might be done on a large order, but since no large orders are forthcoming $15.00 seems to be the figure that prevails. Trenton is looking forward to better business in the future and prices there are about $15.00 to $16.00 on the job. A good deal of building is predicted for Trenton this spring. Perth Amboy, in the midst of the Raritan clay district, could get brick for $14.00 or less and the same figure could be obtained by New Brunswick buyers. In the Northern part of the state the smaller places like Passaic, which has water transportation, get a figure of about $14.00. Hackensack which has large yards and water transportation gets about the same. Englewood pays from $16.50 to $17.50 on the job. These figures fairly represent the situation in the market in this state and are some indication of what may be expected when the building season opens.

A good many whose business is structural work regret that operations contemplated for next season could not have been begun last fall. Thus far the winter has been so mild it could have been possible to do excavating and lay foundations all the time with the exception of about a week. Now the ground is not frozen and the temperature rarely drops below the freezing point. But it was difficult to borrow money for such projects and those who contemplate building elected to wait until spring. It has immeasurably complicated the labor situation, but apparently no help for it exists. With large operations pending in each of the places mentioned, and many others besides the outlook is not altogether promising until after the next Liberty loan is cared for. Then it may be possible to get money with which to go forward with such operations. Those responsible for the present restrictions should have assisted in providing something else to employ those who might otherwise be engaged in some branch of the building trades.

Notwithstanding the poor outlook for building in this vicinity, it is said that carpenters and perhaps some others engaged in the building trades will ask for one dollar an hour May 1 and if the demand is refused they will go out on strike. This wouldn't sound quite so funny if any considerable operations were likely to be in progress. But with building all tied up and no immediate possibility of release to hear of a threatened strike on May 1 seems the height of absurdity. Yet, it might as well come now during this period of readjustment. Then it will all be over together and business can proceed as usual when once the difficulties are settled.

Nathan H. Sloan, of Paterson, has been actively engaged a part of this month in Syrian and Armenian relief work in this country. His ability as an organizer and his knowledge of the operations of such organizations has made him much in demand during the numerous drives the past year. He reports a little better feeling in common and face brick, but with sales still very slow and confined principally to small orders for repair jobs. Almost nobody is buying in any quantity.

Burning was going on in some of the Hackensack sheds in January. The arches were not numerous, but this shows how mild the weather has been. It is a long time since burning in January was possible. Furthermore it was possible to ship down the Hackensack river all through December, but January saw the river closed. It is open again now however, and the weather is still mild. Very few brick are left in any of the yards and no sale is noted for these. Some of the Hackensack yards are looking forward to a resumption of their business the coming summer and expect to turn out about the usual quantity in 1919. They fear only a shortage of labor this year. All other restrictions are removed.

E. M. Rodrock, president of the E. M. Rodrock Company, Paterson, says that inquiries for brick are not numerous and are limited to small orders for repair jobs, foundations and other small work. No important orders have come in yet, but inquiry increases and he expects a good business in the future, or as soon as building operations are resumed. He says that a number have talked to him about possible purchases later, but they are not yet ready to place orders.

If the operations contemplated for Newark materialize this year, and they say it is necessary that some of them be carried out, the sale of brick there, will be twice or three fold what it was last year. Manufacturers and selling agencies are looking forward to a resumption of normal activities soon after the season opens. They seem to think that the reduction in the building during the past four years will force a larger development in the next year or two than is usually the case. At any rate, Newark is much underbuilt now and the outlook favors considerable development in the two years to come. The beginning is coming soon and all through the next two years operations will have to be larger in order to supply sufficient buildings for the increased population. Newark is discussing with considerable enthusiasm a greater Newark which will include a dozen or more of the surrounding municipalities. But it hasn't been carried very far yet. Such a change might lead to increased building in numerous directions. It won't exert any influence this year, even if it is carried out ultimately.

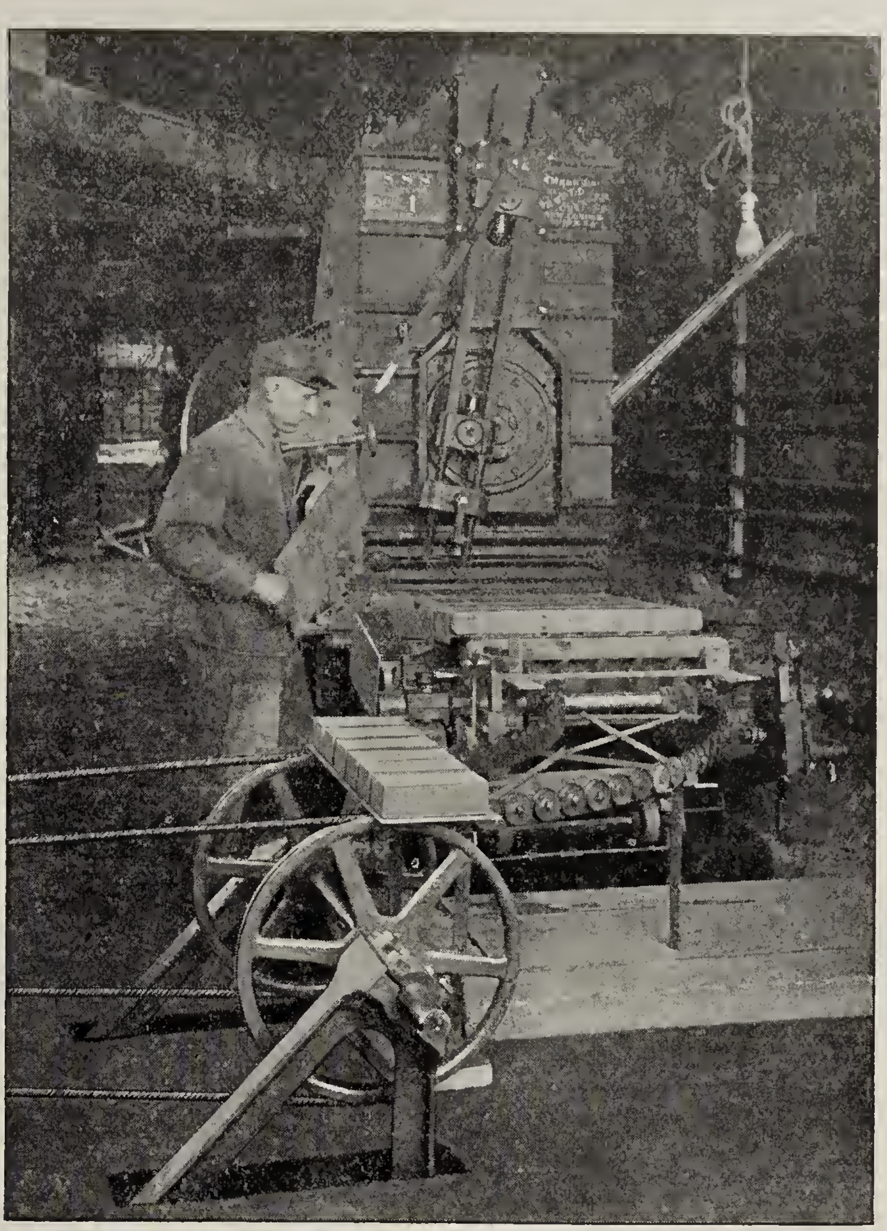
The North Jersey Brick Company, Lyndhurst, of which Alpheus Kranz, is principal owner and general manager, will undertake larger work this year than last. Mr. Kranz says he has no fault to find with his business during the war, but now the fighting is over he expects a better trade than he has had since he took over the property after the explosion in a munitions plant nearby wrecked the old brick works. He has had an uphill fight thus far, the hampering restrictions made necessary by the war operating to prevent liberal sales. But with those all removed, and with building likely to be much more liberal than for a number of years, Mr. Kranz is expecting to do much more than he has since he bought the establishments and erected his new buildings.

The Singac Brick Company, at Little Falls, is planning a revival this year and a resumption of its normal activities. No definite plans have been made for the season as yet, but the fact remains that the outlook is sufficiently promising to warrant improving it. The plant did little last year, but the machinery was kept in condition and this year it will resume its operations upon substantially the same scale as heretofore.

The Hackensack Brickmakers Association is to hold a meeting before very long and its theme will be reconstruction. Hackensack manufacturers suffered as much from restrictions and difficulty in securing labor as the manufacturers of any other locality and now they propose getting together to go over the situation and undertake to devise means by which they can overcome some of the handicaps which still remain.

The Board of Education of Paterson has authorized the preparations for two new grade schools this year. The total expense will run up well toward half a million dollars. The two schools are badly needed since overcrowding is the rule and not the exception in the Paterson schools. A. L. B.

The S. S. S. Special Automatic Soft Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

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ORIGINAL Boss SYSTEM

Drying and Burning

BOSS TEN-HOUR DRYER

Use either waste heat or exhaust steam.
No live steam. No direct firing.

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Applies to all types of kilns and will save HALF in your cost of burning.

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Especialy adapted for outside hauls. So simple and so efficient as to be almost unbelievable.

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Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.

WANTED, ETC.

WANTED.

Position as superintendent by a thoroughly practical brickmaker. Address,

J. A.,
11 tf d Care Clay-Worker.

WANTED—TO BUY.

A brick plant, two or three kiln. Must have good clay and location. State lowest price. Address, "C. N. K.,"
2 1 cm Care Clay-Worker.

WANTED.

Business manager to invest $5,000.00 in a well established, and up-to-date tile plant. Address, "D. F. B.,"
2 1 d Care Clay-Worker.

WANTED—TO INVEST.

Responsible party looking for investment only, would like to get in touch with clay plants needing money to expand. Address INVESTMENT,
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Superintendent for soft mud yard, modern plant, good salary and house. No boozers. Send qualifications. Address, "FRONTIER,"
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WANTED.

Foreman, sewer pipe pressman and an all round machinist. Must be pushers. State particulars and salary desired. Address, "L F. C.,"
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A young man with $5,000.00 to take a half interest in an established brick plant, located in center of city of 250,000 people. A. C. SHARPLEY,
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WANTED.

1,500 to 2,000 iron pallets 10 by 34 in. with or without legs. Address,
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WANTED.

To buy a brick plant. Give full description and lowest price. Address,
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1 tf d Uhrichsville, Ohio.

GILLMORE FIRE CLAY CO.

421 Wood St., Pittsburgh, Pa., mine in Olive Hill district, Ky. Shippers of flint and No. 2 hard, soft fire clay. Analysis and samples submitted on request.
1 2 cm

WANTED—POSITION.

As superintendent or burner on a building brick plant. Am thorough in all branches. Address,
M. C. WILLIAMS,
701 N. Gibson St., Princeton, Ind.
1 3 cm

OIL LEASE AND BRICK PLANT.

Would consider disposing of oil lease to put money into brick or hollow tile plant. Want data on any plants with good proposition for sale.
C. G. BOYD,
259 E. Main St., Bradford, Pa.
1 tf dm

WANTED—BRICK BURNERS.

Two common building brick burners for round down draft kilns. Must be every day men and accustomed to grateless furnaces. Sober and on the job. To such, a good salary if they make good.
MAYER BRICK & TILE CO.,
1 1 d Frostburg, Md.

WANTED.

Brick burner who has had experience burning wide up-draft kilns, set at least fifty brick high. In answering this state in first letter number of years experience, give reference and state salary desired.
BORDEN BRICK & TILE CO.,
12 2d Goldsboro, N. C.

WANTED—SUPERINTENDENT.

For brick plant, making common building brick. Must have thorough knowledge of mixture of clay, stiff mud process, and how to handle colored labor. Must have mechanical ability and understand how to turn both updraft and down-draft kilns. Answer, stating age, salary expected, and experience, etc. Address, BOX N. C.,
12 3 c Care Clay-Worker.

WANTED.

Position as manager or superintendent of brick plant. Thoroughly experienced and best of references. Employed, but desire change. Address,
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WANTED.

Good all-round man as superintendent small soft mud fire brick plant, both hand and machine molding. Plant in Virginia. Excellent opportunity for right man. Address,
VIRGINIA,
1 2 dm Care Clay-Worker.

WANTED.

Good second blacksmith for brick and clay plant. Some horseshoeing, machinery repairs principal duties. Steady employment. Cheap rent. Good schools. State qualifications and wages. Location Central Western Pennsylvania. Address, "P. C.,"
2 3 d Care Clay-Worker.

WANTED.

A good man to supervise the equipment and manage an up-to-date drain tile plant in northern Ohio. A good position for a good man. Can have an interest in the plant if desired. Address, giving references, etc., Box Kansas, care Clay-Worker.
2 1 d

FOR SALE, ETC.

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1—175 H. P. Ball Engine.
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1—Feed Water Heaeer.
2—Pumps.
Complete piping and valves.
1—9 K. W. Generator Set.

Baumes-McDevitt Machinery Co.
Railway Exchange Building St. Louis, Mo
12 3 cm

Classified Advertisements.

FOR SALE

FOR SALE.

All of the machinery of the Riverside Brick & Tile works. Address,

J. L. MEEKS,
2 1 cm Riverside, Ia.

FOR SALE.

Deaths of active members demands sale of small brick, block and draintile plant at sacrifice. Finest clay, unlimited demand, excellent location. Address,

"OPPORTUNITY,"
2 1 lp Care Clay-Worker.

FOR SALE OR TRADE.

A well equipped drain tile factory with forty acres of good land. Fine location. Present manager desires to retire from business. Address

"B. L. S.,"
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FOR SALE.

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A brick plant, capacity 30,000 to 35,000 brick per day, in first class order, railroad siding, material for fire, building on paving brick, with 48 acres of ground, in a flourishing community.

WILLIAM B. QUINN,
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1 3 cm

FOR SALE.

Raymond equal roll crusher, weight 8500 pounds. One ½ yard iron rocker dump car, 24 inch guage. Two transfer cars 50 inch guage by 25 inch guage. These items for sale at your own price. Write us. Address,

WISCONSIN,
1 3 dm Care Clay-Worker.

FOR SALE—CHEAP.

Well equipped brick and tile plant of 100,000 capacity. J. D. Fate Co. machinery and Corliss engine, all installed and ready to run except the driers. Unlimited amount of shale and clay and hundreds of acres of coal lands. Coal can be delivered at the plant for $1.75 a ton. Reason for selling, present owners not familiar with the manufacture of brick. Address,

"INDIANA,"
1 1 dm Care Clay-Worker.

FOR SALE.

A five-kiln tile plant, located in the best agricultural district in southeastern Indiana. The plant is well equipped, modern and up to date. Address,

TILE PLANT,
1 tf d Care Clay-Worker.

FOR SALE.

Best site in country for manufacturing No 1 fire brick. The best of clays and coal on the place. Write for full particulars.

HENRY EDMISTER,
1 2 cm Ironton, Ohio.

FOR SALE.

One four-mold Berg Brick Press, arranged for belt drive or can be direct connected for silent chain drive. This machine has been used only a few months and is practically as good as new. Immediate shipment can be made from Danville, Ill.

American Refractories Co.,
315 Union Arcade Bldg.,
12 tf dm Pittsburg, Pa.

FOR SALE.

BERG PRESS.

With fire brick dies.

4 Disc dry clay feeders, 42 inch.
2 Dry press mixers and steamers.
6 12 to 14 inch wide belt conveyors.
Much transmission—belts, shafting and pulleys.

Above equipment either brand new or slightly used.

MANUFACTURER.
Care Clay-Worker.

FOR SALE.

One 24 inch disintegrator, almost new, one 10 by 16 Atlas heavy duty engine, good condition; one three ton truck, dump coal bed. 48 ft, 14 by 8 ply Leviathan belt, good. Would exchange above for 9 ft dry pan, 80 ft 16 by 8 ply belt, or dryer cars. Address,

MAXWELL CLAY PRODUCTS CO.,
1 2 cm Maxwell, Iowa.

BRICKYARD FOR SALE.
EXCELLENT OPPORTUNITY.

Prosperity will soon be here for the Brick Mfgr's. Here is an excellent opportunity to buy an established brick manufacturer's plant for less than half of its cost.

One hundred thirty-seven (137) acres A-1 Clay, 2 machines, pallett yard, dock, sheds, three (3) dwellings and barn on the Hudson river, seven miles north of Hudson City.

Communicate with

W. N. GILL,
Strand St.,
2 2 dm Kingston, N. Y.

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—88 pages."

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Before Buying or selling
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FOR SALE—AT A BARGAIN.

Clay plant, located on railroad with fifty acres of extra good clay ten feet deep. Suitable for drain tile, building brick and other clay goods. Capacity, one 24-foot round down-draft kiln. Satisfactory reason for offering for sale.

M. W. MAYES,
2 2 c Summerville, S. C.

FOR SALE.

Hollow brick and tile plant. Located in city of fifty thousand. No competition. Own railroad siding. Reason for selling, owned by corporation and none familiar with industry. Price right to an energetic and responsible party. Address, FRED C. BEAM, Agent,
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Pulaski, Va., interested in securing location of brick manufacture, fine shale near railway and water. Growing town with no brick yard within sixty miles. Splendid opportunity for party looking for good location. Further information address, E. W. CALFEE,
2 3 cm Pulaski, Va.

FOR SALE.

1 Horton pug mill.

1 Auger brick machine, one tile press as good as new. Twenty 24-inch gauge cars. Four 48-inch gauge transfer trucks. All built by American Clay Machinery Co. Photographs furnished, if requested.

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FOR SALE.

A brick plant in the city of Pittsburgh. The property includes twenty-one acres with a sufficient quantity of clay to operate the plant for a number of years. The plant itself is small, soft mud outfit, having a capacity of 20,000 per day. Death of a partner and a desire to retire from business, reason for selling. For particulars, address,

WM. BLAIR,
4761 Liberty Ave.,
2 tf d Pittsburgh, Pa.

FOR SALE AND WANTED.

FOR SALE.

1 Bensing aut. tile cutting table, 3 inches to 8 inches, good shape, $100.00.
1 Brewer No. 47, hand-cutter, side cut brick, new, $30.00.
1 Brewer No. 38, hand-cutter, end cut brick, new, $40.00.
1 American board delivery side cutter brick, good shape, $40.00.
2 Drymore No. 2 lifting trucks, new, each, $25.00.
4 solid deck, one wheel spring trucks, good shape, each $4.00.
1 ¾ yard LAKEWOOD steel rocker dump car, 24-inch and 30-inch. gauge, $45.00.

CHEHALIS BRICK & TILE CO.,
1 2 d Chehalis, Wash.

WANTED.

To buy a soft mud, second hand, brick machine. Quote price and condition to

CRYMES CONSTRUCTION CO.,
2 1 cm Hattiesburg, Miss.

WANTED.

GREATER DRESHLER.

Needs a 5,000,000 per year capacity BRICK PLANT, and will help finance, if necessary. For information write

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90 Rack Dryer Cars, good condition.
1 9-ft. dry pan as good as new.
1 Iron stack, 70-ft. by 30-in. diameter, galvanized wire guys.
1 Automatic side cutter, new.
1 5 h.p. gasoline engine, used only one month.
2 24-in. Robins belt conveyors, 50 ft., centers, good order.
1 Steam heating coil, blower and engine, for dryer.
1 Double transfer car, 1-single transfer car.
360 T irons, 2-in. by 2-in. by 8 ft. long, good for dryer.
1 Freese medium pug and brick machine.

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2 1 c New York City, N. Y.

FOR SALE.

One No. 16 straight roll Brewer Crusher. Good as new. Further information on application.

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1 2 d Kankakee, Ill.

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Well established brick plant located in Bogota, Colombia. Ricardo Calvo, R., after 44 continuous years in the business, owing to advanced age, offers his modern and up-to-date brick plant for sale. Brick in this country sell from $12 for common, to $45 for hollow block. Chambers machines, almost new, and other machinery fitted for the manufacture of paving brick, hollow and roofing tile, etc. Inexhaustible supply of clays. Good houses for working men and fine dwelling for superintendent. If interested write for further details to the Clay-Worker, or

RICARDO CALVO, R.,
Apartado 273, Bogota, Colombia,
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WANTED, ETC.

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To contract with reliable parties to set, load and draw brick and block. Address, "MAC,"

2 1 d Care Clay-Worker.

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Sell
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You will be surprised how quickly you will make the sale or the purchase.

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All sizes and gauges for handling different materials.

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Books of Interest to the Clayworker

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Gives much valuable information relative to the properties, preparation and application of materials used in the construction and operation of furnaces.

CERAMIC GLAZES, price $10.00.

The book is remarkable for its systematic thoroughness, no more finely arranged charts of glazes in the way of careful gradations, coupled with extensive variations, could well be imagined.

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Dry and Wet
Grinding Pans
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Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
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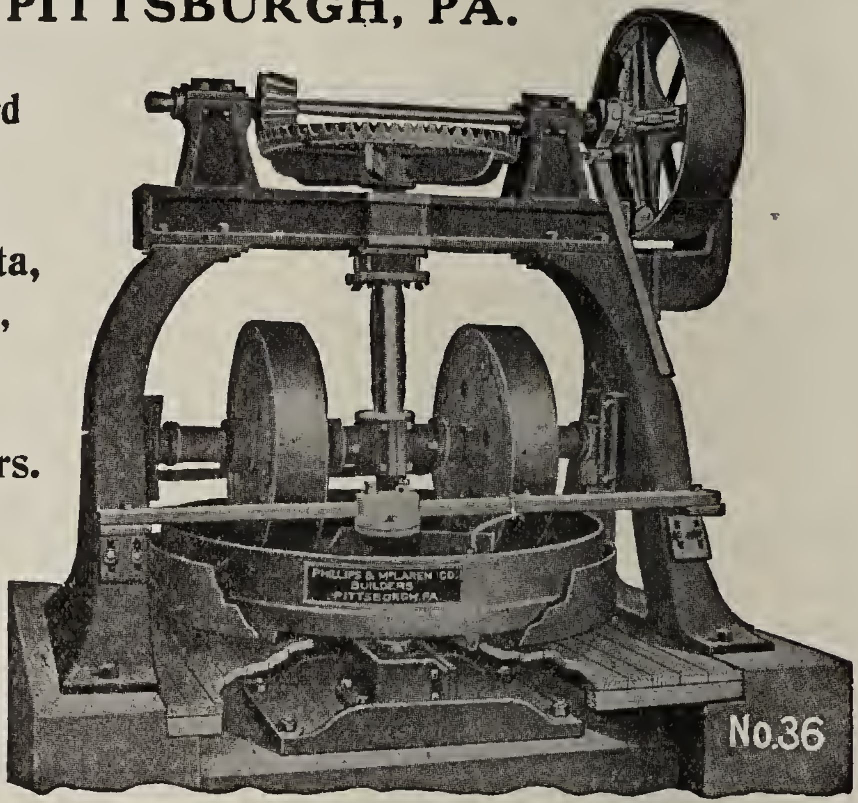
Philadelphia, Pa.



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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, IND., March 14, 1919. Convention Number.

OFFICIAL REPORT OF THE THIRTY-THIRD ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, PITTSBURGH, PA., FEBRUARY 3-8, 1919.

FOR THE THIRD TIME in the history of the N. B. M. A. Pittsburg proved a really great convention city. The Thirty-third National convention was in every essential a most gratifying success, thanks in a very large degree to the cordial spirit of hospitality that greeted the visitors at every turn, city officials, the local clayworkers and the representatives of the Chamber of Commerce were very kind and attentive and made every visitor feel welcome, proving anew that they are masters in the glad hand art. The visiting ladies particularly will each and all testify to that.

In attendance and spirit the meetings were an inspiration. This is evidenced by the following proceedings, though no printed page can give more than an intimation of the spirit of good fellowship that is always a part and parcel of the N. B. M. A. meetings. All told, there were over four hundred in attendance which was all that could be expected, considering the times and conditions. As has often been said, mere numbers do not matter in convention procedure. As in military matters it is the esprit de corps which counts most and that spirit is the dominant element in our National conventions.

President George H. Clippert, Detroit, Mich.

FIRST SESSION.

Wednesday, Feb. 5, 2:30 P. M.

President Clippert: The Thirty-third annual convention of the National Brick Manufacturers' Association will now come to order. We will as usual open our meeting with prayer, led by Dr. C. L. E. Cartwright, of Pittsburg.

The Opening Prayer.

Dr. C. L. E. Cartwright: Oh, our God, our Heavenly Father, we are under the guidance of thine eye. We cannot escape from thy presence. We come together in this convention rich in fellowship with God, the Father, with Jesus Christ, the Son, and the greatest man that has ever lived in the history of the world. We come our Father, thankful that we are not brought together by fear, but by love and by a common and blessed fellowship. We implore thy blessing upon us, that as thy servants, doing the work which is before them in this convention. May it be a very helpful one to the members; may all of the social features and fellowship be that which shall send them home to their various cities better and stronger with a more hopeful outlook upon life; with a better adjustment of themselves and of business; with a greater patience and wisdom as they pursue their business in the reconstruction and readjusted conditions that confront us today. We pray thy blessing upon this great organization throughout the United States of America. We pray thy blessing upon this great Nation, upon this country we fondly call our own, of which we are more proud today than we have ever been on any day in our lives before. We thank thee our God for victory—a victory which is going to bring to us and to the whole world, a freedom in the lives of individuals and Nations deprived to many heretofore.

Oh, Lord God, bless us as citizens of this great commonwealth that we may take our places with alertness, that we may seek to do our part in the glorious reconstruction of this great country destined to lead the nations of the world. Upon all the officers and members of this convention, let thy blessing rest, and upon this glorious city of which we are proud to call ourselves citizens. Oh, Lord, continue thy favor unto us, and bless thy servant who is with us today, the Mayor of this city, endow him with heavenly wisdom, and may he live

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true to the imperishable ideals of our Father's, doing the greatest good to the greatest number of people. Hear us, oh God, for Jesus sake, Amen.

President Clippert: One of the duties of a Mayor of a city is to welcome conventions. We know from past experience, it is very often the case that one of the city officials has to take care of that matter at the last moment when the Mayor does not find it convenient to come, and we thought until a few moments ago that was what was going to happen today. But it is our good fortune to have the Mayor with us now, and I take great pleasure in introducing to you the Honorable E. V. Babcock, Mayor of this great city. (Applause.)

WELCOME TO PITTSBURG.

Hon. E. V. Babcock, Mayor.

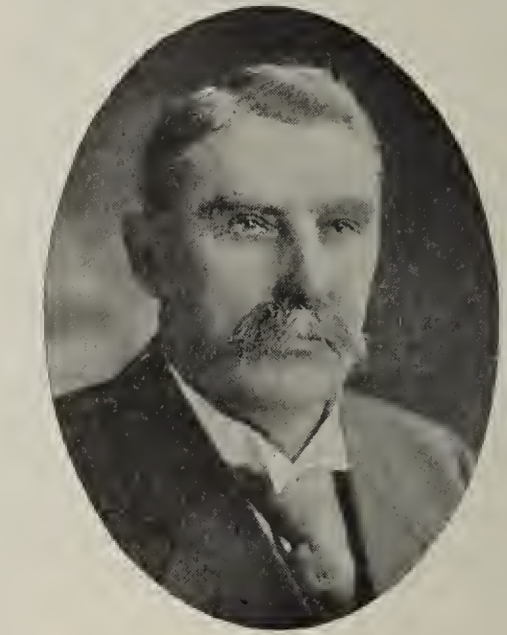
Mr. President, and Gentlemen of This Convention:

Sweetened up and sandwiched in with, I see some very good looking ladies, whom I particularly want to welcome to Pittsburg. In fact, I will mention them first for fear I forget them. Your President has said that it is the function of a Mayor to welcome conventions in almost every city. Our city and our Mayor are no different from others in that respect. It seems that Pittsburg has got to be a great city in more ways than one, and now we are honored by more conventions than we have ever had before, and bigger and better conventions, than we have ever had before, and it makes the duty of greeting and welcoming the convention a little more than ever before. If I am strictly honest, I may say it is a little more pleasant than it ever was before, because it seems that the kind of people that come here are the very best people in the land, and therefore the pleasure of welcoming them is and ought to be a pleasant and agreeable duty. There are so very many of them if I attempted to study up a speech and prepare it in advance I would have but little time to do anything else. I am always impressed when I come before an assemblage of this kind that I have not prepared something fitting for that particular line of business, something that would enlighten you.

However, it is a pleasure to stand before you and look into your faces, and realize that such an important industry as yours is, should be here today. Realize as I did, when I came on to the platform, and met men from Macon, Georgia, and Birmingham, Alabama, and the great city of New York, and run on to one of my friends from Atlantic City to whom I used to sell lumber a good many years ago—he is a brickmaker now, but I have not forgotten him, for he always paid his bills promptly and I am sorry he has worked out of the lumber business and got into the brick business. You do well to come to Pittsburg and to Pennsylvania. We are a great city and a great state. We have the great institution in which you are housed, of sufficient quality and capacity that makes us feel like inviting big organizations of this kind to come to Pittsburgh, feeling we can entertain and house them properly. We are proud of Pittsburgh, it is really and truly one of the greatest cities in the world. Pennsylvania, formerly the keystone of this nation, proved to be in the great conflict in which we have been engaged the last few years the keystone of the whole world. Pennsylvania furnished one-eighth of the entire quota of men that this nation sent to the front to fight for her. Pennsylvania paid freely and generously because she had it to give, one-sixth of the finances that the United States has furnished, to finance her armies, her military work, and not only that but by backing up the allied nations that were fighting shoulder to shoulder with us. When it came to purchasing munitions of war, war necessities, Pennsylvania furnished one-half of them. While Pittsburgh does not take a back seat for any city in the world. When it comes to doing things, Pittsburgh is in the front row. I may be a bit boastful, but I want you all to know you are in a real city. I presume you ladies have come with your husbands. Don't be afraid to turn them loose in Pittsburgh—it is a clean city. Don't worry about them going wrong—they can't do it. The good Doctor who prayed so well and so earnestly told me he was going to pray for me because he knew I needed it, and he did it and did it well. But Pittsburgh is a good clean city, clean and progressive in every way.

Now, gentlemen, I hope for you that your stay in Pittsburgh may be pleasant, profitable and enlightening, and that when you get through with your business here, you will have accomplished something that will redound to your good, and to the good of those with whom you are connected. You business men certainly deserve a little sympathy. I think our business interests are today in an awful condition and you do well to get together and confer and organize and study your conditions, because there is work to do along that line in this reconstruction period we are in. I do not know whether there are any newspaper men in the room. I hope they will not quote me. I want to tell you, we are in a critical period right now, and if you do not know it you want to waken up. If there ever was a time when there were thousands of men asking for labor it is now pending. You business men are interested in this. You would rather be employing men. You should like to have a market for your product. I would warn you that is the condition facing us all in this land. That is one thing you have got to work out, and big organizations of this kind coming together and studying these problems will do more to help than anything else I know of. Hence, I wish you a profitable stay in the city of Pittsburgh. (Applause.)

President Clippert: After hearing that splendid address of the Mayor's, I know you all feel quite at home. To prove to you that the Pittsburgh people are glad we are here, we have a member of the Chamber of Commerce with us this afternoon, Mr. Frank J. Lanahan, Chairman of the Convention Committee of the Chamber of Commerce, and I take much pleasure in introducing him. (Applause.)



President-elect J. W. Robb, Clinton, Ind.

WELCOME FROM THE CHAMBER OF COMMERCE.

Frank J. Lanahan.

Mr. Chairman, Ladies and Gentlemen:

His honor, the Mayor, as he says, only comes on rare occasions, when it is a convention that is worth while. You can readily realize how he regards this convention today when he comes in person to welcome you. My job is ordinarily to attend conventions, but like the Mayor, I want to say there are conventions and conventions; those to which you go with a perfunctory interest and those to which you go with a real pleasure and a realization that they are a body of people that accomplish things. I was a little surprised at his Honor taking the joy out of life for some of the members—I do not know that it was necessary to say at this stage of the proceedings what a lily white city we have, how pure and good the atmosphere. If you had sat where I did and seen the countenance of some of the members drop when the Mayor made that remark, you would realize they did not appreciate that.

His Honor spoke of forgetting the ladies. He has too keen an eye for the aesthetic, too keen an eye for the beautiful, and too sound a judgment of the eternal feminine to ever forget any of the beautiful ladies he meets, and I am sure he will carry away with him today, and of course mention to Mrs. Babcock what delightful ladies there are present at this convention.

It is perfectly proper, I think for the Chamber of Commerce to recognize a commercial body, particularly a body that plays such an important part in the welfare of the Nation; in fact, the very foundation of the building of our great country, the homes, are the things that come first, I think in the building of a nation; from the homes and factories and stores and school houses and churches and buildings you can determine very well the character of the people. A convention made up of men such as are assembled here plays an important part in the national upbuilding. Pittsburgh is very glad to welcome you, and in behalf of the Chamber of Commerce do I extend that welcome.

I thought possibly it would be necessary to say something about Pittsburgh and its commercial side. The Mayor has told you some of our great features, how he contributed in men and money in the great conflict which we are now ending. But when I read the foreword in this program of yours and saw how bright was the comprehension of the compiler of same, I realize that if you have read this book you need no information from a resident of Pittsburgh. I would call your attention to the first page given over to the Official Announcement. The statement is made, "The Nation's Armory," as Pittsburgh is now called, is the hub of the Nation's industrial life. It is one of the great clayworking centers of the Nation, being within a night's ride of a majority of our members, hence it is the logical point for our national convention." That you have honored this city by coming today to hold your annual convention three times, speaks well for the city, and incidentally, may I say for your own good judgment. It is easy of access and its great manufacturing plants I think are very stimulating to those that have the good fortune to see them.

Douglas F. Stevens, Cayuga, Ind.

Another thing that is spoken of in this little pamphlet over on page 25 shows the author has a knowledge of affairs that have been indicated of the conditions mentioned by the Mayor. "These are troublous times for all manufacturers. Troubles incident to Reconstruction confront us all. It therefore behooves clayworkers to take advantage of every opportunity for mutual conference and counsel in matters of common interest."

It was my good fortune to go as a delegate to the Chamber of Commerce at Atlantic City. I dare say some of you here were delegates, and know full well the time and attention that was paid to co-operation and the get together movement which has come to be regarded as essential in all lines of industry. In the past there has not been enough of the spirit of co-operation and co-ordination. The fact that you gentlemen are here, and that your Secretary and Executive Officers have compiled such statements as you find in this program shows they are keenly alive to the times in which we are living. Mayor Babcock has sounded a warning to you gentlemen that I am sorry to tell you from my business experience is all too true. We are in a serious period of depression; conditions that confront us today require the best thought and the best exchange of ideas to work out the proper solutions, and if you gentlemen here today in convention can work out some suggestions where labor is concerned, where you can still sell your products; when you find new customers, when you can still keep employes working and not change the hours of labor; when you can find any business to have them work on; if you are still able to keep the wheels running; then you are pretty near miracle workers. But if we lie dormant and idle we never get anywhere. There is one consolation, that with every depressed period we have ever had, when it was black and gloomy, and the clouds were imminent, and we all thought there was nothing to induce us to go along with industrial progress, some way or other, there has come a ray of light, the sky shines clear, it breaks into our business with a warmth that starts things going again.

This glorious country of ours is not going to be stagnant very long, and you gentlemen and others like you are the ones to solve the problems. I do not believe that any of the other thirty-three conventions you have held have meant so much to you and to the industry and to the Nation as this present convention. In the past you have honored Pittsburgh in the selection of your chief executive, and I notice in your list you again honored this district by electing a gentlemen who has camouflaged a little by putting himself down as belonging to Bridgeville, but Bridgeville is just a little hamlet somewhere up on the creek and really belongs to Pittsburgh.

I trust when you go away you will do so with the knowledge of work well done. I hope you will realize not only the Pittsburgh Chamber of Commerce and the Chief Executive of the city have felt honored by your presence, but our citizens as well are glad you are with us. I assure you the Chamber of Commerce realizes the honor you have done us and I hope, as you have met here three times, you will be here three more times, and every time you will be more welcome than you were on the previous visit. (Applause.)

President Clippert: Mr. Mayor and Mr. Lanahan, to show you how much we appreciate the splendid welcome you have given us, I am going to ask Mr. Douglas F. Stevens, of Cayuga, Ind., to respond to your words of welcome. (Applause.)

Response to Welcome Addresses.

Douglas F. Stevens: Mr. President, Mayor Babcock, Mr. Lanahan, and ladies and gentlemen: I am sure I speak for every member of our convention and our guests in saying that we appreciate very deeply the welcome of His Honor, Mayor Babcock, and Mr. Lanahan, who spoke on behalf of the Chamber of Commerce. I remember very well our last convention here nine years ago. It was the first convention of the National Brick Manufacturers' Association it had ever been my pleasure to attend, and I remember the very cordial welcome which the people of Pittsburgh gave us at that time, and the splendid entertainment afforded us, and every facility given for the comfort and convenience of the visitors and the carrying on of the work of the convention. While the hotel we now meet in is a little larger, I am sure we cannot be any better cared for than we were at that time.

In listening to the remarks of the Mayor and Mr. Lanahan I cannot help but feel there are compensations in two things for those of us who live west of the Wabash. We did not have a chance to do a great deal of war work, and we had been rather resentful of that fact, and felt perhaps the Government authorities could have spread out the work a little farther and gained in effciency by doing so. so we could have done a little more. On the other hand, when I hear what the conditions are in Pittsburgh, that they are facing a serious depression, I think perhaps it was a good thing we did not have much war work out our way, because we have no such period of depression right now, and while some of our work was cut off we have planned our work and are going right ahead and we are looking forward to one of the most prosperous years we have ever had.

That reminds me that Pittsburgh is in a peculiar location geographically in this country. Those of us who live west of the Wabash consider Pittsburgh a central and eastern city, but there are others who live east of the Hudson who consider Pittsburgh a western city, so I think in many ways it contains elements that are characteristic of both the east and the west, and it is is many ways the meeting point between the east and the west in ideas and industry The statement that Pittsburg is a great clayworking center is certainly true. There is no question but that a very large amount of the clay products of this country are made within a comparatively short distance of Pittsburgh, and it is therefore very convenient for all of us. At the same time, we like to get away from home and get a chance to see some of our friends who do not always come as far west as for instance, Indianapolis. We have noticed that when the conventions are east you see a larger proportion of western men than you see eastern men when the conventions are held in the west; but wherever the convention is held, we usually have a goodly representation from all parts of the country. I am sure in this convention this year, we will enjoy the facilities and hospitalities of the city of Pittsburgh and all the conveniences and entertainment provided for us. We are very glad to be here and are very grateful for the welcome that has been accorded us. (Applause.)

President Clippert: What is the next order of business, Mr. Secretary?

Secretary Randall: Before the next number, Mr. President, I would like, with your permission, to make an announcement. We are indebted to the Chamber of Commerce of Pittsburg for many courtesies extended to us. They have a very fine lunch room in connection with the Chamber and we are invited to come and take lunch there every day if we like, There is always something doing there. They have a fine auditorium, and we have planned to have our Thursday afternoon session there. We will go over there to lunch at 1 o'clock and immediately following that will adjourn to the auditorium in the Chamber of Commerce bulding. We are to have three or four illustrated lectures and some moving pictures, and it will all be very interesting.

The next number on the program is the annual address of our President, George H. Clippert, of Detroit, Mich. (Applause.)

President Clippert: Now we come to one of the pleasures of being president of the N. B. M. A. That is, to write an address and read it yourself, and I want to say to you ladies and gentlemen that this is no easy task when you follow such men as Mayer, Deckman and Salmen. I have made it short so as not to tire you, and with just a few moments of your attention, I will read it.

PRESIDENT'S ANNUAL ADDRESS.

GEORGE H. CLIPPERT.

Ladies and Gentlemen of the National Brick Manufacturers' Association:

We are today convened under better conditions and brighter auspices than obtained a year ago; a time which found us in the very midst of a world war, members of our families in military service, our business at a practical standstill, and our operations controlled by rigid government restrictions.

With lighter hearts and renewed spirit we are now come together; all undeniably proud of the successes achieved by our country; and ready to assume our share in those endeavors and activities which will show, in the arts of peace, the supremacy of this nation so effectually and conclusively proven by our attainments in arms.

These emotions, however, are dwarfed by the deep and heartfelt sympathy which we accord to those of us whose kin so nobly gave up their lives for their country. That there be some slight recognition of our obligation to these brave young men, let us incorporate in our records a Roll of Honor, reciting their names and deeds, a permanent source, not only of pride, but also of patriotic inspiration to all future generations of brickmakers.

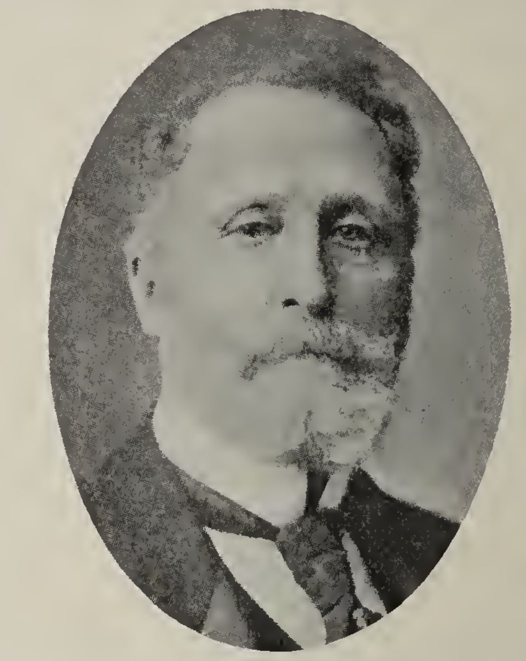
And it is my fervent hope, which I know is endorsed by every one of you, that the deliberations and decisions of the Peace Conference will bring about the *absolute* assurance that war, with all its horrors, is for all time, made an impossibility.

In the era now at hand many perplexing and vital problems, of both a business and social character, make insistent demand upon our notice and require our most serious consideration.

Our association, and all others of like aims, must be strengthened to the utmost, must have the the personal and unswerving interest and support of every member. How, otherwise, can we be prepared to cope successfully witth the I. W. W. and Bolshevcki type, their doctrine and demand? What shall we be able to accomplish against adverse legislature? In what other way can we expect to become an effective part of that great co-operation and influence so necessary to the restoration of a normally prosperous and industrious phase of national existence.

The prudent counsel of "get together and understand each other," proffered by the government during the war, does not now lose its wisdom or its logic. We now know the meaning of "pre paredness," its advantages and resultant benefits; we have a good conception of the tasks and duties that confront us; and our adherence to this wholesome advice can not but be productive of the most gratifying results.

During the past year another organization in the burned clay industry, the Common Brick Manufacturer's Association of America, with headquarters in Chicago, has come into existence, and, from latest reports, is to become a very strong and substantial body. I hope to see it, and all other societies in the clayworking field, affiliated with the National Brick Manufacturers' Association, convening yearly with us at the same time and place, and thus gathering together all the representative men in the clayworking industries, the means whereby the exchange of ideas and information may be facilitated, our strength and stability properly evidenced, and due recognition of our influence established.



First Vice-President, Wm. K. Hammond, New York, N. Y.

Building reports and forecasts point to a very busy year, and our government lends its encouragement to these construction projects. Precautions should be taken to provide for any demand and to preclude the possibility of any shortage of brick, as estimates by the United States Department of Labor indicate that construction of public and private buildings and improvements, to an amount exceeding three billion dollars, has been postponed because of the war, and it is intimated that a Federal Bureau, known as the Division of Public Works and Construction, will be established to further the resumption and completion of these deferred operations.

Strenuous indeed has been the career of our secretary during the past year, war conditions making necessary his attendance at a number of meetings of the War Service Committee, held at Washington and Atlantic City, relative to fuel supply and other matters affecting the welfare of the brick manufacturers. I desire, now, to thank and commend him for the very efficient work done in this connection.

That I have been privileged to serve this Association as President I shall always regard as one of the most noteworthy incidents of my career. The performance of my duties has been attended with very great pleasure, and the knowledge that your loyal support has been unstintedly given to make my administration a success is a source of the keenest satisfaction. For this, for your encouragement, and for the honors conferred upon me, I most sincerely thank you. (Applause.)

President Clippert: This brings us to one of the most interesting numbers of the program. The report of our Treasurer, John W. Sibley. (Applause.)

Report of Treasurer Sibley.

John W. Sibley: Mr. President, and ladies and gentlemen: I am sorry that a trip to Washington last week did away with almost all of my voice, but I will try to raise it to such a pitch that you can hear me. Before proceeding with my report there occurs to me something in the line of reminiscence with previous Pittsburgh conventions. It was my good fortune to attend both, the first held twenty-three years ago was significant for the period of the history of our Nation. The first day we assembled in Pittsburgh, the Maine was blown up in Havana harbor, and that was something that started America on her career as a Nation to take up arms in defense of the opposed and defenseless Nations, and set the high standard to which America has lived through all these years. She is going forward with her aims and purposes even on the other side of the water today.

I felt somewhat at home when I got into the train at Cincinnati and walked into a parlor car called Wittmer, and that reminded me of our good friend Xavier Wittmer whom we met in the first Pittsburgh convention, and when Mr. Dunwody and his son and I went through to the dining car we went through the cars "Butterworth" and "Converse," so we were certainly on a clayworking special. It is surely a pleasure for me to be here in this convention today, and judging from the past, we will have a most delightful time.

TREASURER'S REPORT.

To the Officers and Members of the National Brick Mfrs. Assn.:

Gentlemen—I beg to hand you herewith statement of Receipts and Disbursements for the year just ended. In common with the Brick Industry as a whole we have felt the blighting effects of the World War and I regret to report that our expenditures for the year were greater than our income by $307.63 but fortunately the husbandry of former years had accumulated a good surplus and notwithstanding this drain we still have a comfortable balance of $565.10 in the treasury.

It is but fair to explain that the deficit for the past year was incurred almost wholly in connection with the work of the War Board, so that after all it was just contributing a "bit" to help win the war.

But now that the strife is ended and a permanent peace in sight, I will do my best to build back our famous surplus, lest you might think I was loafing on the job. And that reminds me of a story of an old darkey friend down South.

"Some un sick at yo' house, Miss Carter?" inquired old Mose Jackson. "Ah seed the doctah's kyar eround dar yistidy."

"It was for my brother, Mose."

"Sho! What's he done got de matter of 'm?"

"Nobody seems to know what the disease is. He can eat and sleep as well as ever; he stays out all day long on the verandah in the sun and seems as well as any one, but he can't do any work at all."

"He cain't—yo' say he cain't work?"

"Not a lick."

"Law, Miss Carter, dat ain't no disease what yo' brother got. Dat's a gift!"

Respectfully submitted,
JOHN W. SIBLEY, Treasurer.

PITTSBURGH, Pa., February 5, 1919.

RECEIPTS.

Balance in treasury, account 1917		$872.73
Renewal fees, account 1918	$1,835.00	
New memberships 1918	295.00	
From sale reports, badges etc	79.15	2,209.15
Total		$3,081.88

DISBURSEMENTS.

Paid for convention program, mailing, etc	$140.00	
Paid for convention report, mailing, etc	316.51	
Paid for special letter war service work	231.55	
Paid for membership Amer. Test Society	15.00	
Paid for membership Nat. Chamber of Commerce	15.00	
Paid for miscellaneous printing	157.87	
Paid for lantern slides and operators	48.60	
Paid for postage, telegrams, expressage, etc	215.00	
Paid for numerical roster	23.75	
Paid for engrossing certificates	3.50	
Paid for clerk hire	300.00	
Paid for Secty. traveling expenses	250.00	
Paid for Assistant Secty. allowance	200.00	
Paid for Secretary's annual allowance	600.00	
Total disbursements		2,516.78
Net balance in treasury		$565.10

RECAPITULATION.

Balance in treasury, account 1917		872.73
Total receipts	2,209.15	
Total disbursements	2,516.78	
Excess, disbursements over receipts	307.63	
Balance for 1918		$565.10

President Clippert: What is your pleasure as to the Treasurer's report.

George O. Berry: I move it be accepted and placed on record.

H. B. Loveland, New York: I second the motion.

Carried.

President Clippert: You will see by the program that we have on same this year, "Secretary's Report." This is unusual but I thought it no more than just that the members of the Association know some of the things our Secretary has been doing this year. He has had a very strenuous year.

Secretary Randall's Report.

Treasurer John W. Sibley, Birmingham, Ala.

Secretary Theo. A. Randall: This is the first time in thirty-three years I think that this item has appeared on the program. There are several reasons for that. In the first place, I am accused of being the ruling element in this organization, always more or less conspicuous, and I have always desired to minimize that as much as possible by forcing myself upon you as little as possible. The work of the convention is the report of the Secretary.

As to the report, I feel a little like the fellow Charley Schwab told about at the Chamber of Commerce meeting at Atlantic City. He said there were two preachers, an elderly man and a younger divine. The older preacher was complaining that he could not hold the attention of his audience as he would like to. He said he prepared his sermons with great care—"I begin on Monday and write my Firstly; on Tuesday, my secondly; on Wednesday my thirdly, and so on through the week, and I have sometimes thought," he said, "that the devil knows what I am writing as well as the Lord, and he poisons the minds of my parishioners against me so that when Sunday comes, they do not heed my preaching as well as they might. How do you manage it?"

The younger man said, "I don't worry over my sermons, sometimes I don't write them at all. I just think it over and then I preach them when I get into the pulpit. As a matter of fact, the devil cannot poison the minds of my people against me, because he don't know, God don't know, and I myself don't know what I am going to say." (Laughter.)

I am much in that position. I had a little line of things I thought of submitting to you, but we had an Executive Committee meeting yesterday morning, and when I told them something of what I had in mind, they said "Randall, the war is over, let us have peace. Deal in the future and not in the past." I never was a military man but I have learned to take orders—I have been married forty years, so when our president told me to put report by secretary on the program, I said "All right, down goes the secretary's report."

As the president has stated, the past year has been a very strenuous one. I think all those connected with organizations of this type have done more work with less results than ever before. Conditions are not favorable for organizations of this sort. Militarism and war talk has supplanted almost everything else the past year or two. A great many organizations have suffered more than we have. We have weathered the storm and can see a rainbow of promise ahead for this Association. We planned a little program in the Executive Committee this morning by which we are going to strengthen it. Thirty-three years, a third of a century, we have been carrying on this work along the lines of educational work, all of the organizations in this country today, representing the clay industries have without exception almost, sprung from this organization. The National Brick Manufacturers' Association has done the pioneer work; we have inculcated in the minds and hearts of the clayworkers of this country the spirit of good fellowship and co-operation and improvement in the methods of manufacture. We have furnished the industry with a literature which it never had before and never would have had but for this association. I maintain that the annual reports of the conventions of this Association constitute a little library of great value to every man in the clay business, particularly the brick business. So that our efforts have not been in vain.

We are not merely a social body, coming together to have a good time. We have done some very important work along standardizing some of the clay products in this country. The work of the Committee on Technical Investigation has been very valuable to the industry. Professors Edward Orton and Albert Bleininger, the ablest technicists in the clay industries, have directed the work of the committee. We have not made as much noise about it, perhaps, as we should, but the results are very important and helpful to the industry and a credit to the N. B. M. A.

Last year we sent to the members a larger amount of trade literature than we have ever done before in any one year. Just a few days ago, we mailed from the secretary's office a little pamphlet on the Fuel Question that is very valuable and should find a permanent place in the library of every member. We have sent out a number of pamphlets of that sort, including the final report of the work of the Committee on Technical Investigation on brick piers and strength of piers which was carried on in collaboration with the U. S. Bureau of Standards. We have done good work in that respect that will result in great benefit to the industry.

I thank you for the hearty support you have given me and I know you will continue to give it to me so long as I continue to serve you. That reminds me of a story. John Sibley always gets the advantage of the rest of us by his darkey stories. This is a true one. We have a janitor in our office—a funny nigger who stutters. He is about thirty years old and got into the army. His wife who had been doing his work while he was gone said to the Assistant Secretary, "Abe comin' home." "That's too bad," said Miss Wallace, "What is the trouble." "Oh, thar haint no trouble. They put a uniform on Abe and give him a gun and sent him up to Michigan—you know that big camp way up in Michigan. When Abe gets nervous he stutters like everything. That gun made Abe so nervous he couldn't talk a tall. They put him on guard—and, you know, he had to say when anybody come along "Who goes there," and that nigger stuttered so, he couldn't say it. And when some one else was on guard and they would say to Abe who goes there, he'd stutter so he couldn't tell 'em. So they fired him and he's comin' home. He says now he is in the B. B. class. Miss Wallace said, "What do you mean by the 'B. B. Class'." "Land, don't you know? It means he'll be here when the rest of the niggers go to war, and he'll be here when they come back." So, you see, I am like Abe, I am in the B. B. Class. (Applause.)

Third Vice-President T. E. Wilson,
Pittsburgh, Pa.

Second Vice-President W. E. Dunwody,
Macon, Ga.

Secretary Theo. A. Randall,
Indianapolis, Ind.

Election of Officers.

President Clippert: This brings us to the election of officers and standing committees. Nominations are now in order for the office of president.

Douglas Stevens, Indiana: Mr. President, I take great pleasure in presenting the name of a man for President of this Association who has served us very faithfully during the past three years, as third, second and first vice-president; a man who for many years has been very prominent in the clayworking industry and especially in organized work in the clay working industry, having made a very fine record in the paving brick line; a man who has taken a great interest in every movement to advance the clayworking industry. I am pleased to nominate Mr. J. W. Robb, of Clinton, Ind. for president of this Association. (Applause.)

J. Fred Smith: I want to second the nomination of Mr. Robb, and ask that the rules be suspended and the Secretary instructed to cast the unanimous vote of the convention for Mr. Robb.

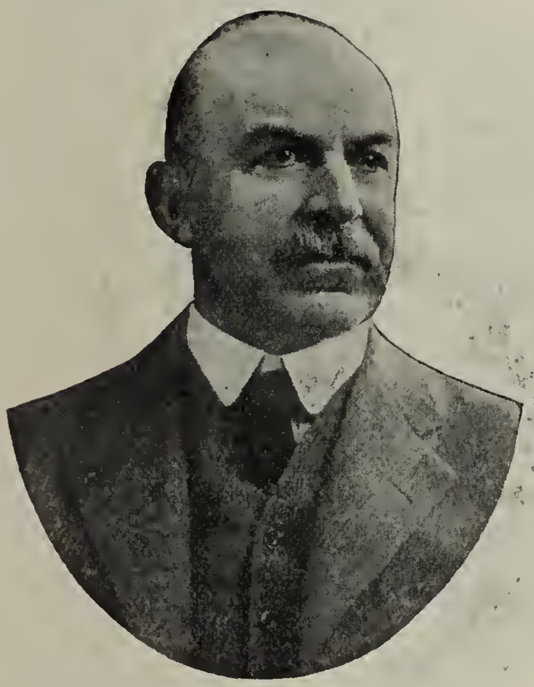
President Clippert: If there are no objections, I will declare Mr. Robb duly elected president of this Association. We will now hear nominations for first vice-president.

R. G. Eisenhart, Horseheads, N. Y.: I want to nominate for first vice-president a successful brickmaker from the Hudson River District. The gentleman has not only made good as a brickmaker, been faithful in the brickmaking arena, but made good wherever else he has been. I assure you he will make a good presiding officer. I nominate Mr. Wm. K. Hammond, of New York City for first vice-president. (Applause.)

M. E. Gregory, Corning, N. Y.: As a Knickerbocker, I want to second the nomination of Mr. Hammond. He is one of the best and greatest brickmakers in the state of New York. It gives me much pleasure to second his nomination and ask for the consent of the convention for the secretary to cast the ballot for Mr. Hammond as the unanimous choice of this convention for first vice-president.

President Clippert: The assistant secretary has cast the ballot and I declare Mr. William K. Hammond your first vice-president. Nominations are now in order for second vice-president.

H. H. Stafford, Augusta, Ga.: Mr. President, it is a peculiar pleasure for me to come from Georgia to Pittsburgh, Pennsylvania. It is in the nature of a return visit for the 40,000 Pennsylvania troops that were trained in my home town at Augusta, Camp Hancock. I take pleasure in rising to nominate my chief competitor and neighbor, and good friend, W. E. Dunwody, of Macon, Georgia for second vice-president. (Applause.)


Ex-President R. G. Eisenhart
Horseheads, N. Y.

Ex-President M. E. Gregory,
Corning, N. Y.

Ex-President C. P. Mayer,
Bridgeville, Pa.

W. W. Dickinson, Little Rock, Ark.: I move the same order be followed that maintained with the other officers.

George E. Berry, Columbus, Ga.: I second the motion. Carried.

President Clippert: The assistant secretary has cast the ballot of this convention for Mr. Dunwody and I declare him duly elected second vice-president. We are now up to the third vice-president.

C. P. Mayer, Bridgeville, Pa.: Mr. President, Ladies and Gentlemen of the great National Brick Manufacturers' Association of America, I rise for the honor and privilege of placing in nomination the name of a man for third vice-president. The candidate is probably not as well known among the brickmakers of the country as many others are, but I want to say I can vouch for his sterling qualities as a brickmaker. He is the nearest competitor I have, our plants are only about three miles apart, and when we went in to manufacture common brick and face brick, he was our most active competitor. I want to say for him he is the type of man that will not decry his competitor's wares that he may obtain an order for himself. He is a good competitor. He is truthful in every instance. Pennsylvania ranks third in clay products in this great United States. Pittsburgh is a large portion of Pennsylvania. We sometimes delight in calling Pittsburgh, or Allegheny County the State of Allegheny. If you will consult statistics, you will find that in population Pennsylvania ranks eighth in the Union, but that does not cut any figure. Since the great National Brick Manufacturers' Association has honored Pittsburgh and Pennsylvania with this convention, we in turn want to honor this great Association with a candidate that will measure up in every particular to every man who has been president. This candidate has been president of the Pennsylvania Clay Club, and I want to say to you right here and now that any man who can keep those "tom cats" from scrapping has some ability. He has kept the members of the Pennsylvania Clay Club where they stand shoulder to shoulder in a solid phalanx. The Pennsylvania Clay Club is one well worth patterning after. The members have learned that in order to be successful themselves they must first see their neighbors in the same line of business successful, and as long as they stand on that principal they will be successful. I do not believe there is a member of the Pennsylvania Clay Club that will not back me up in all I say. They will all do business without crabbing. I also want to say that our candidate is a man of high standard of morals and he is a man of high business efficiency, and his name is Thomas E. Wilson, of Pittsburgh. (Applause.)

President Clippert: Are there any other nominations for third vice-president?

E. F. Knight, Newark, N. J.: I think this is a case of "Wilson, that's all." (Laughter and applause.) I move we take the same procedure with Mr. Wilson as with the other candidates.

Seconded by several and carried.

President Clippert: Our assistant secretary has cast the ballot and I therefore declare Mr. Thomas E. Wilson of Pittsburgh, Pa., third vice-president of this Association. Will Mr. Wilson please stand up so we may see him?

Mr. Mayer: Mr. Wilson was called out of the city this morning, but he will be here this evening. I thought he would be here before this.

President Clippert: We are now up to the election of treasurer.

Will P. Blair, Cleveland, Ohio: I suppose we do not dare spring another candidate from any other part of the country because the gentlemen from Birmingham seem to have the confidence of all the members of this Association. It gives me great pleasure to place in nomination the name of John W. Sibley of Birmingham, Ala., for treasurer of this Association. (Applause.)

John C. Boss: I think we can go along with the same procedure without going to the bother of a vote.

President Clippert: The assistant secretary tells me she has cast the ballot for Mr. Sibley for treasurer, and I declare him duly elected for another year. We are now ready for nomination for secretary.

Secretary Randall Nominated by Cablegram from Scotland

W. E. Dunwody, Macon, Ga.: I guess it is a little unusual for a member of the immediate official family to nominate another member, but this is an unusual case. We have down in Georgia a gentleman whom we consider the dean of the brick manufacturers of the South. He is a man who has always loved our Secretary, Theodore A. Randall, and as an absolute proof of it, I received several days ago, in fact on the twenty-eighth day of January, a cablegram dated Glasgow, Scotland, which reads as follows:

"W. E. Dunwody, Macon, Ga.

Hearty greetings to the brothers. Act for me in nominating Teddy Randall for Secretary."

(Signed) J. W. McMillan of Milledgeville, Ga.

It gives me great pleasure personally, and on behalf of Mr. McMillan to nominate Mr. Theodore A. Randall as our secretary for the ensuing year. (Applause.)

J. A. Mercier, Detroit, Mich.: I want to second that nomination.

President Clippert: I think we will waive all formality and declare Mr. Randall elected. Think we are justified in this when the nomination comes from abroad. (Applause.) What is the next order of business Mr. Randall?

Secretary Randall: We are down to the election of a member of the Committee on Technical Investigation. If the members will turn to page 18 of the program you will find the members of the Committee on Technical Investigation. Mr. R. Kanengeiser is the member whose term expires this year. He is no longer in the brick business and has not renewed his membership so it up to us to nominate someone to fill his place on the committee. The work of the committee has been a little bit dormant the last year, for most of the members have been very busy with war work. But the time is now ripe when the work should be resumed and prosecuted very rigorously. Therefore it is wise for us to strengthen that Committee. A report will be given later during the session telling what the Committee has done the past year. If Prof. Bleininger or some other member of the Committee has no one especially in mind, I would like very much to nominate as a member of this Committee, Warren D. Griffis of Baltimore, Md. I talked with Mr. Griffis a month or so ago when I was East. He is very much interested in this work, and will have the advantage of being able to meet with the Committee at Washington at the Bureau of Standards, a branch of which is located here in Pittsburgh. It is not generally known, but this branch is to be moved to Washington. They have erected a beautiful edifice there—a new home for the Bureau of Standards, and the Pittsburgh branch is to be moved there probably the coming year, and that will make it quite convenient for Mr. Griffiths to work with Prof. Bleininger and the other members of the Committee in that section. I nominate Mr. Warren S. Griffis as the other member of the Committee on Technical Investigation.

M. E. Gregory: I second the nomination, and move we take the same procedure as with the other election.

Seconded and carried.

President Clippert: I declare Mr. Griffis duly elected a member of the Committee on Technical Investigation. Is there any other election Mr. Secretary.

Secretary Randall: Last year a number of committees were appointed and their time ends with the year for which they were appointed. I know, however, of no reason why these committees should not be continued, and the present president or the incoming president can reappoint or appoint new members. These committees you will find on page 10. They are:

Committee on Fire Prevention—H. H. Stafford, Augusta, Ga.; Jotham Post, East Williston, L. I., N. Y.; M. C. Viele, North Adams, Mass.; J. L. Buckley, Philadelphia, Pa.; Howard Frost, Los Angeles, Cal.

Committee on Efficient Engineering—E. C. Hillyer, Raleigh, N. C.; John B. Cahoon, Salt Lake City, Utah; J. F. Reynolds, North Haven, Conn.; J. T. Howington, Louisville, Ky.; W. W. Dickinson, Little Rock, Ark.

Committee on Publicity—W. E. Dunwody, Macon, Ga.; Herman Matz, Chicago, Ill.; B. W. Ballou, Buffville, Kansas; John Andre, Evansville, Ind.; Charles H. Bryan, Detroit, Mich.

Research Committee—B. Mifflin Hood, Atlanta, Ga.; Warren Ittner, Belleville, Ill.; William Koch, St. Paul, Minn.; Spencer M. Duty, Cleveland, Ohio; O. W. Ketcham, Philadelphia, Pa.

Program Committee—M. E. Gregory, Corning, N. Y.; R. C. Burton, Zanesville, Ohio; D. Warren de Rosay, Corry, Pa.

It is always desirable that all committees be represented pretty generally geographically as well as possible, and these committees were appointed with that in view, as well as to appoint men who were particularly interested in the particular line of work they have in charge.

Presdent Clippert: I think the matter of the membership of these committees should be left to the incoming president.

C. H. Bryan, Detroit: I move the matter be left to the incoming president.

President Clippert: Think we can take this by consent.

Secretary Randall: I have been asked a time or two to explain what is meant by the Research Committee. Some have seemed to think that the Research Committee would interfere with the Committee on Technical Investigation, but such is not the case. This committee was appointed at the suggestion of Mr. A. R. D. Johnson, who unfortunately for us, died during the year. He had certain things in mind such as visiting clayworking plants and observing certain methods of work, improvements, etc., and presenting same to the National Convention. The work was in no way to conflict with that of the Committee on Technical Investigation.

John Mercier, Detroit, Mich.

Installation of Officers.

President Clippert: I am now going to present to you a gentleman whom I have esteemed very highly, and I am going to ask you to give him the same loyal support that you have given me. I take great pleasure in introducing to you your new president, J. W. Robb of Clinton, Indiana.

President-Elect Robb: Mr. President, ladies and gentlemen, I haven't any funny story to tell you. I asked my wife to find one for me, and she reported that she did not have her Ladies' Home Journal with her and consequently I have no appropriate funny story to tell the convention. I do want to thank you for having elected me president of this Association, one of the greatest Associations of which it has ever been my pleasure to be a member, and I am sure I will receive what Mr. Clippert has asked you to give me—your loyal support. I am glad to be elected President in Pittsburgh, the hub of our industrial life of America. I thank you all for the friendship you have shown me and I will ask that you support me during the time it is my duty and privilege to preside over your deliberations. (Applause.)

President Clippert: I come now to another great pleasure—that of introducing to you my New York friend and your friend, William K. Hammond of New York City, your first vice-president.

William K. Hammond: Ladies and gentlemen, one of the previous speakers, telling of a clergyman and his success, that when he got up he did not know what he was going to say, and that is my case exactly, except I do want to say that I have the good of this organization at heart, and I want to see it prosper and progress to the very highest degree. I know there is one way for it to do that, and that is through harmony and co-operation without any pulling apart, nor disagreeable comment on the conduct and language of any other party. Now, you will say in answer to that "What have you done in your district to show that is possible?" Well, all I can say is you had better go ask them. I have done all I could do, but they have not at all times done all they could. You all know what Mr. Lincoln said, "You can not fool all the people all the time." You can co-operate with all the people some of the time, and with some of the people all of the time, but it is almost impossible to co-operate with all the people all the time. We have on the North River a co-operation nearly all of the time without making any great fuss about it. The very pleasant things which our retiring president and others have said about me, I thank them for. I have tried to be worthy of their esteem, and I assure you that I will do my best in the future in serving you. (Applause.)

President Clippert: The Executive Officers of this Association are blessed with two Southerners which is very fortunate indeed, for the organization for two reasons—they are both good workers, and both good story tellers. I take much pleasure in introducing to you your second vice-president, Mr. Dunwody of Georgia.

W. D. Richardson, Columbus, Ohio.

Vice-President W. E. Dunwody: Mr. President, ladies and gentlemen, I am not going to tell you any funny stories. However, there is one point of similarity between our treasurer and myself that our president did not mention—we are both bald heads. Gentlemen, I now accept this very honorable office, and I certainly so consider it. I accept it for service, than which there is no greater word in the English language. I heard a man say not long since that he had heard another man say that he had never got anything out of the National Brick Manufacturers' Association. It is up to us all to get busy and get something out of the N. B. M. A. Let us realize that we get out of anything what we put into it. "He profits most who serves best." You will recognize that as Rotary. Let us realize that if we help the other fellows, we are going to help ourselves. In regard to harmony, I am an apostle of harmony. I do not believe in trying to pull down anybody else's work. Let us all help and learn of the other fellow. Woodrow Wilson told us how to get best results. He said "It requires constant association and co-operation." Let us practice that. Let us help each other. I thank you. (Applause.)

President Clippert: Our Treasurer, Mr. Sibley needs no introduction. (Applause.)

Treasurer Sibley: Mr. President, ladies and gentlemen, I have said "I thank you" so often that the repetition of it must grow monotonous, and yet it comes from the heart. I will endeavor to serve you and pile up a surplus, and I hope you will never be as sorry of electing me treasurer, as happened to a darkey friend of mine down South. He got married and after three weeks of married infelicity, he called on the preacher who had married him, and asked him to help him get a divorce. The preacher explained it was not his duty to grant divorces, and tried to dissuade his visitor from carrying out his intention to get a divorce. He said, "You remember, Sam, you promised to take Eliza for better or for worse." Sam said, "Yassir, I know dat, but she so much worser'n I took her fer." (Laughter and applause.)

President Clippert: Mr. Mayer, did I undertsand you to say that Mr. Wilson was not here

Mr. Mayer: He was called out of the city this morning, but I thought he would be here this evening.

President Clippert: Gentlemen, I will ask the Secretary to introduce himself. (Applause.)

Secretary Randall: Like Treasurer Sibley I have stood before you and said "Thank you" many, many times. I believe we are now entering a new era which will be productive of greater results for our Association than ever have before. I reiterate that the Association has done a great good, and any man who comes to these conventions and goes home and says he has received little or no benefit, is either very dull or very careless in his speech. It does not stand to reason that a manufacturer can come and rub shoulders with other men engaged in the same business and not receive some benefit. Our National Association was never stronger in all the essentials of usefulness than it is today. (Applause.)

I am particularly pleased with my nomination by cablegram from my good friend, J. W. McMillan, who has long been a staunch supporter of this organization. That is made manifest by his thinking of us when far away in his native land. Would that we had many more McMillans in the business and in this Association. I thank you sincerely, and as I have said so many times in the past I will continue to serve you to the best of my ability. (Applause.)

President Clippert: Miss Wallace now informs me that I am through. Before leaving the rostrum I want to again thank you ladies and gentlemen for the very kind assistance you have given me and I hope I may meet you a great many times in the years to come, and to take you by the hand and ask you how all the grandchildren are getting along. Of course Brother Eisenhart takes the prize so far as grandchildren are concerned, and we cannot any of us hope to compete with him. President Robb, I am very glad to turn this gavel over to you. (Applause.)

President Robb: What is the next order of business Mr. Secretary?

Secretary Randall: We have a treat for you. We have in Indianapolis a young man who has achieved a very good name as an architect. He went into the service a year or so ago, and just prior to doing so, he got up for the Building Bureau our book, "Types of Modern Brick Houses," and previous to that he got out another beautiful book, "A Book of Distinctive Brick Homes." These two books put in the hands of the builders of the country will help you very much to increase the sales of your brick. Lieut. Kopf went over to England and was put in charge of a company rather new in military service, a company of bricklayers whose duty it was to build brick structures for the housing of the soldiers in training, particularly for those engaged in the aircraft work. (Applause.)

President Robb: Gentlemen of the convention, Lieut. J. Edwin Kopf of Indianapolis who has a paper on "Build Now." (Applause.)

Lieut. Kopf: As an architect, I want to tell you we have no fear of the future in the use of brick in this country. I am afraid Mr. Randall has boosted me too far. I feel a little like the negro soldier he told about a little while ago—I would like to get out of this job.

BUILD NOW.

LIEUT. J. EDWIN KOPF, INDIANAPOLIS, IND.

Mr. President and Gentlemen of the Convention:

We have fought a good fight. In little over a year and a half, this great nation of ours, turning from long established peace time pursuits, organized *a mighty Army,* the like of which the world has never seen, and which, God grant, it will never be necessary to mobilize again.

America has shown the world that the *"minute man" is not dead,* and she emerges from the *World War* with a glorious record, bigger and richer than ever before, with greater prestige abroad and greater markets both at home and abroad. The victory of liberty did not hurt the United States, however terribly it wounded Europe.

In a recent editorial under the caption "The United States—A Going Concern," appears the following pithy paragraph:

"Is it not presumable that the richest, strongest, most solvent, most active and most independently-placed nation in the world will continue on the map? Surely this is not a violent assumption, although, strictly speaking, it is no more capable of demonstration than any other future proposition. It is sufficient, however, for the ordinary American, if he will but stop to think, that he and his fate are wound up in the fate of the country. If the United States is to go down, the average American would just as soon go down with it, and if the United States is to go forward, the average citizen is satisfied to go along, rather than seek his fortune in other countries."

We mobilized our resources of men and material for war record time and now that they are no longer needed, the reconstruction period will be another record breaker, and we are returning to commercial pursuits better fitted than ever before to enjoy the blessings of peace.

Every facility is at hand for an era of great prosperity. Our *banks* are bulging with money; our *credit* is above par; our *export trade* enormous; our *graneries* well filled; and our *mills* and *factories* beter equipped that they ever have been.

The government has released all *war restrictions* on raw materials, labor and transportation. In other words, the United States is on the mark and set ready for a winning race *undisputed world commercial supremacy.*

The starting pistol has already been fired and woe betide he who holds back for this is no time for the chronic pessimist.

The building industry has practically been at a *standstill* during the past two years, because our *resources* of men and material were necessarily better employed elsewhere. Now, however, we are to see a revival of building which will increase in volume each month will rapid strides.

The *first stage* will be construction work of a public *character,* such as school houses, hospitals, libraries, bridges, roads, etc. We *urgently need* more and better *housing facilities* for our population, and private construction will soon follow in the wake of the larger work.

Realizing that one of the best means of bringing the country back quickly to a *peace time basis,* is to revive the building industry, the Federal and State authorities are urging all departments in the states, counties, cities and towns to start the delayed building operations. When we are told that over 800 public schoolhouses, aggregating more than $100,000,000 have been held in abeyance as a result of the war and that this construction work will soon be under way, a more thorough realization is had of the magnitude of the building boom of which the country is on the threshold.

With the importance of the building industry in mind, at this time the *"U. S. Department of Labor,"* has organized as part of its *"Information and Educational Service"* the *"Division of Public Works and Construction Development."* The Department of Labor announces that "The purpose of this new division is to interest the public in *construction activities* of all sorts. This means that work on public buildings, highways and homes is to be encouraged in such a practical manner that the Spring may find every state engaged in projects which will insure *operations* in all *communities* and will provide employment for the hundreds of thousands of returning soldiers and workmen released from war industries."

This new division is investigating *construction costs* and the probability of a decline in prices in the near future. No doubt there will be a decline in some directions but in this connection *Mr. F. T. Miller,* Director of the "Division of Public Works and Construction Development" has issued a statement to the effect that a decrease of 20 per cent. in construction cost *might* develop during the next four or five years but that this is regarded by many as a *maximum* decrease. The division further is authority for the statement that in general the *price* of *building materials* has not seen the *increase* in the last two years that *other commodities* have.

In *Great Britain,* the cost of *building material* is more than *double* that of the pre-war figure. England has seen almost five years of *bitter* and *heart-breaking conflict,* and with her man power sadly broken, she faces problems which we should indeed be *thankful to have escaped. Before I left England they had formed a new "Ministry of Reconstruction"* to deal with post-war problems. The chief of this new ministry said sometime ago, "All reconstruction policy must be based upon a *healthy* and *vigorous population,"* and one of the *first acts* of the "ministry of reconstruction" was to make *plans* for a *national house-building project* subsidized by the state under an *arrangement* with *various local governments.*

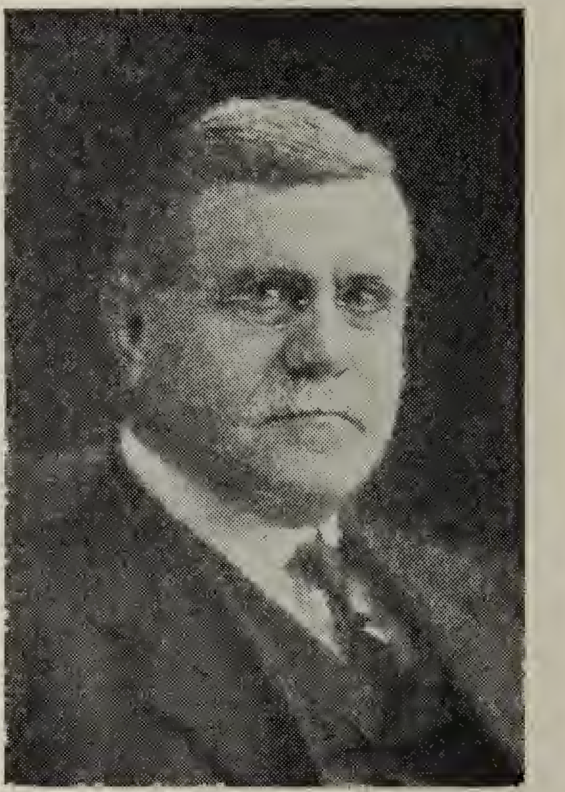
Our own government, through the newly organized "Division of Public Works and Construction Development," has installed a branch called the *"Own your own home section,"* and this section has started a movement that will enable the *"Building and Loan Associations"* to provide capital at low rates of interest. It is proposed that a scheme modeled somewhat upon the "Federal Farm Loan Act" be followed and proper legislation is to be *advocated.*

Should this measure be enacted into *law,* the "Building and Loan Associations" in the United States would have $2,000,000,000 in first mortgage securities that would be of great assistance in immediately financing a big *home building movement of nation wide character.*

In recent years there has been more and more apparent a desire among *home builders* for *permanent* forms of construction. *I believe* that the time is *very near* now, when the frame building will be practically a thing of the past, and just as it is in England, brick will become the *standard building material* not only for the larger building projects but also for the modest Building and Loan Dwellings. This is the big field that soon will be thrown wide open for the use of brick. There is no permanent building material which can crowd *brick* out of *its rightful heritage.*

The "National Building Brick Bureau" about two years ago, commissioned me to prepare drawings of *twelve standard types* of moderate priced brick houses for the purpose of incorporating into book form and using to promote interest in this type of construction *among small investors.* This book has now been published and is properly named *"Types of Modern Brick Houses," "Standard Construction."* Quoting from the "Foreword" of the book: "Through *long study* of the needs of American *family life,* certain *styles* of plan and construction have been evolved and perfected and are recognized by builders generally as *standard.* An attempt has been made to *gather* in this book the generally accepted *types* of modern domestic architecture that best meet the varied *requirements* of *site, taste* and *economy.*

"Considerable study has been given each house to make it a *true standard* in itself for certain conditions and the practical solution of the *moderate priced home* for the *average man will be found,* it is believed, within the covers of this book."



Will P. Blair, Cleveland, Ohio.

We must all boost the newly awakened building industry, not because it might fall back to sleep again because its boom is as *inevitable* as the *final outcome* of the *World War* was when *America* entered the field; but to quicken its sluggish awakening so that this Spring, as previously quoted, it "will provide employment for the *hundreds of thousands of returning soldiers* and *war workers."*

In "The Voice of Business," Collier's says, "What the *business man* should do is to give *employment* to all the *workers* he can possibly use. Now is the time to *train* his workers; now is the time for him to *prepare* his stocks—for when the demand comes it will come *suddenly* and, according to all accounts, it will be an *overwhelming demand."*

In closing I want to add a word for the *discharged soldier*, not that he needs my *feeble voice*, *his* record is writ in letters of *gold* and will go *resounding* down the *paths* of *time* as long as there is *History*. He has seen his duty and he has *done* it, *done* it with a smile and a shout, a joke and a heart full of kindness. He will return to *his work* after his discharge better *physically*, *mentally* and *morally*, and his *employer* will *share* in the *reward*.

At the last a story; "A detachment of Americans halted beside the road and threw themselves down to rest, their captain among them. He was just an *American boy* like the rest, like *millions* of others.

A Boche shell screamed through the air, fell and burst. A fragment struck the *young captain* and he fell back. In a moment he *raised himself* with the last surge of his departing life. He looked into the eyes of one of his lieutenants, *"The order is forward,"* he said, and died.

There you have it, the spirit of these *boys*. They have shown the stuff they are made of. *Who can say that* in the years before us America will not benefit by the experiences they have had?" (Applause.)

President Robb: Mr. Hood was to have opened the discussion of this paper. Mr. Hood has written a letter in which he said he had been ill and so had other members of his family with the influenza, but that he would be with us if possible.

Albert V. Bleininger, Pittsburgh, Pa.

He may yet come and as he is particularly well informed on this subject he could give us something interesting. If there is no discussion on this paper, which I think will be a very helpful paper when in print, and it may be well to make use of it as a publicity argument, I would suggest that we overlooked the Report of the Committee on Technical Investigation by Prof. A. V. Bleininger, and we can have that now. Prof. Bleininger is a young man so please keep order so he can make himself heard. (Applause.)

REPORT OF COMMITTEE ON TECHNICAL INVESTIGATION.

A. V. Bleininger.

Mr. President and Gentlemen of the Convention:

The report we have to make is comparatively brief. As you know, the last work we had undertaken was the testing of brick piers, and the results have been completed and published, and the report is now in your hands. After the completion of this work Colonel Orton undertook another task. The subject selected was connected with the specifications for building brick and with the work of Committee C-3 of the American Society of Testing Materials. In this connection it was thought necessary and desirable to get a good many bricks from different parts of the country and to test them not only for compression and cross breaking strength, but also by freezing and other tests. It will be recalled that about three years ago a new test was advocated, mention of which has been made on the floor of this convention as an artificial freezing test. In order to approximate the actual freezing and thawing it has become practice to subject the bricks to twenty treatments. These repeated freezing tests are unsatisfactory from the standpoint of time and cost. If any of you ever undertake a freezing test, say freeze them twenty times, you would find it quite a job. So we froze the brick in another way, by filling the pores of the brick with a solution of salt, Glauber's, and then causing the salt to crystalize by drying. The salt would behave very similar to the action of ice. Colonel Orton thought this subject important enough for investigation. He was so interested in it that he undertook at his own expense such work at the Ohio State University. We have with us the man who has done this work, and I would like to call on him to explain very briefly what the results were. This sodium sulphate test is being considered by the American Society of Testing Materials, but the question of its adoption is very much in doubt. A society like the American Society for Testing Materials must be impartial, and can not support conclusions which might be unfair to other building materials. So as far as the practical conclusions of this work is concerned, I do not know what will happen. I would not care to advance any material unjustly over other materials, but we do think the matter should be given very careful attention, and this we shall endeavor to do.

I may say also with regard to the brick pier investigation that we have a small balance left of the money turned over to us—$73.91 a check for which I shall transmit to the Secretary. A statement might be made also with reference to the work during the past year at the Ohio State University. It was impossible to do anything for reasons quite obvious. The college men were the first ones to enlist in the army. The courses were demoralized, some courses were completely abandoned, and their places taken by new courses, and so it was absolutely impossible to secure students to do work along these lines. Consequently, there was nothing that could be done at the Ohio State University in connection with the scholarship. In regard to future work, let me say I think we should push this work far more vigorously than we have in the past. I know this is an old story. I made the same statement several years ago at the New York meeting. But I do believe work should be undertaken in co-operation with members of this association who could be induced to co-operate with us, and on a very much larger scale.

This is about all I have to report, and with your permission I should like to introduce Mr. Elsworth P. Ogden who has had charge of these tests of which I have spoken. I am very sorry Colonel Orton cannot be with us at this time, but his duties are still quite exacting and he could not leave Washington.

President Robb: We will be glad to hear from Mr. Ogden.

Ellsworth P. Ogden, Zanesville, Ohio: Mr. Chairman, ladies and gentlemen, I don't know exactly what Prof. Bleininger wishes me to say unless it is to tell you a little about the actual work connected with these tests the results of which have been assembled on that chart. I think he wants you to know that it was work covering a considerable period of time, and a work made possible only by a very favorable combination of circumstances. The most difficult part of carrying out an investigation of this kind is to accomplish the actual ice freezing, because, as you know, it is very difficult to get a series of actual freezings in the open air, and in a winter like this almost impossible to do so. But we had at our disposal the newly completed refrigeration plant at the Ohio State University, which was built at a cost of $20,000, and with the assistance of the Ohio State University we secured an experienced engineer who operated that plant about twenty hours a day, and we were able to keep the temperature down to about O°F and were able to put about twenty samples of brick down to that point and freeze them every night. We had samples of brick from fourteen different states. The brick were first graded according to their absorption, and the absorption ranged from 4% in hard burned to 26% in the softer burn. Bricks were then chosen for the actual freezing test and bricks of similar absorption were chosen for the sodium sulphate freezing test.

This is a test which can be carried out by any one with a very simple equipment in any back room. About all you need is two tubs and a gas stove. After the brick are thoroughly dried they are immersed in a sodium sulphated solution which is kept at a constant density. They are kept in this solution over night and are then taken out and drained. They were then steamed until thoroughly hot and while still hot were placed in a drying oven and dried as rapidly as possible to a temperature of 110° centigrade.

The reason for doing this drying was to cause the crystallization to take place under a standard condition. The brick were treated the same way after each drying or each crystallization. Examination was made after each treatment and the brick were photographed. Then they were put back into the solution and allowed to remain there until they had become thoroughly saturated, they were then steamed again and dried again. Each saturation, and steaming and drying constituted one artificial freezing. This was carried on five different times, observations and photographs being made each time. The various groups were then graded according to their behavior under this test.

I should have said that we started with ten brick in each group; five of them were treated to this artificial freezing test, and the other five were then treated to an actual ice freezing in the refrigeration plant, and they were frozen and thawed twenty times. It took twenty working days, but at the end of each five times they were photographed. The investigation will be given in printed form, and the photographs, at least some typical ones will be shown. The results seemed to prove that the sodium sulphate, or accelerated freezing method will distinguish between good bricks and questionable ones very quickly, but it is not fair to say that the brick that will fail under a sodium sulphate treatment will fail under actual use.

The solution is what is known as Glaubers salts, which can be bought for two or three cents a pound.

It has been found that this method of sodium sulphate treatment is not suitable for testing cement brick. It seems to have an effect on the cement or sand-lime brick which disintegrates them very rapidly.

It seems to me after working with this several months that the principal value of this investigation is that it gives a direct comparison between these two methods, showing results that have been obtained at considerable expenditure of money, and making it unnecessary to repeat these rather laborious experiments again. This is its first value.

Second value is that from a study of these results, that any manufacturer can make very satisfactory examination of his own product and can find where the danger line is in his own product; find out just how soft a product he dare let go into the market, and be sure it will stand the effect of time. (Applause.)

President Robb: I believe you are going to be catechised some, Mr. Ogden, so you had better come back to the front.

Will P. Blair: I would like to ask Mr. Ogden a question. You have stated and Mr. Bleininger intimated that sodium sulphate test was rather severe on a sand-lime brick, and the opposition of the cement people was spoken of. Mr. Bleininger intimated that this test would likely meet with some opposition. I would like to ask whether or not the chemical influence of this test of which you have told us, whether it occurs so far as you have been able to judge, or so far as you may know in the actual exposure of the two materials in place in the open air or winter weather?

Mr. Ogden: As regards the burned clay brick, or the sand-lime brick?

Mr. Blair: As regards both. Whether or not the laboratory test is consistent, does not agree with conditions that we may expect these materials to be subjected to in the practical use.

Mr. Ogden: I would say as regards the burned clay products you can get a disruptive effect by means of the sodium sulphate treatment which will be a duplicate of a disruptive effect obtained by a series of repeated freezings. We find that four sodium sulphate treatments produced as much disintegration as twenty actual ice freezings on the burned clay products.

I do not think it fair at all on cement brick or products because we are considering only the disruptive effect in the form of crystallization in the pores of the product. It is like the form of the ice crystallization in the pores of the product. When you come to a cement product you have a disintegrating effect due to the chemical action of the salt on the chemical constituents of the cement. So as I have said I do not consider it fair at all for the cement products.

Mr. Blair: Do I understand you to imply that the disruptive force of the salts is such a force that disrupts clay products entirely apart from the chemical action in their place in use similar to other materials?

Mr. Ogden: We believe the disruptive force of ice is purely physical. I do not believe the force of water in the pores of a chemical brick has any action on burned clay. It is possible there is some chemical action between the salt and the clay properties. So far as I know, there is not. Perhaps Prof. Bleininger can answer that.

Prof. Bleininger: There is no chemical action in the clay brick.

General Discussion.

President Robb: Any other gentlemen a question he would like to ask Mr. Ogden?

Marion W. Blair, Thornton, W. Va.: May I inject just a word at this point? The report you have heard is from the Committee on Technical Investigation of the N. B. M. A. A great many of you are no doubt members of the American Ceramic Society, I do not know whether you have attended any of their meetings, or whether you were much interested in the program. But at the American Ceramic Society meetings this year, which are just about to be concluded over at the Fort Pitt Hotel, the highly technical problems which enter into the manufacture of brick and clay and their marketing, just as this investigation indicates, were distinguished by their absolute absence. As we are aware, while some of the members of the American Ceramic Society don't like to acknowledge the fact, the American Ceramic Society is an offshoot of the National Brick Manufacturers' Association for the purpose of considering the highly technical problems connected with the manufacture of clay products. They have drifted away from brick and tile to a certain extent. They have in their membership men interested in clays and other ceramic products.

Marion W. Blair, Thorton, W. Va.

Now, being a child of the National Brick Manufacturer's Association, and members of the Association being largely members of the American Ceramic Society, it seems to me a pity to let other materials dominate the activities of the American Ceramic Society. We have no papers published in their Journal, we have no part in their proceedings. There is a plan on foot in the Society to separate to a certain degree these various interests, to form what are known as professional sections, so that papers read before the Society which are of particular interest to glass makers, or to white ware makers, or to brick makers may be discussed in their particular sections by men who are particularly interested in the subjects dealt in. One or two of these sections were formed at this convention. Now it is proposed to form a section which shall deal with the subject pertaining particularly to brick and tile. I do not believe, there are any manufacturers here who would say they have solved all of the higher technical problems in the manufacture of brick and tile. There is still a great deal of work to be done along the manufacture of the so-called coarser clay products. The personnel of the concerns interested in the manufacture of these coarser clay products is gradually assuming a more technical character, if I may say so. Graduates of technical schools are going into the brick and tile plants, the ceramic chemist and engineer lays out plants on scientific lines; the burning goes along on scientific lines, and work of that kind is gradually increasing in the brick and tile business, and is going to increase more and more.

These men should have a part and the business as a whole should have a part and benefit by the work done by these men in that line of manufacture, just as well as the glass industries or the white ware industries should have the benefit of that work. This is preliminary to an announcement I am about to make. We plan to recruit to full membership the brick and tile section of the American Ceramic Society. We wish every man who is a member of the National Brick Manufacturers' Association and is not a member of the Ceramic Society and every member who feels an interest in these technical problems would join this brick and tile section. Give your support for a little technical investigation and aid us to publish something in the Journal of the American Ceramic. We propose to form a section and a preliminary meeting is called for nine-thirty tomorrow morning in this room. Please be prompt, because we want to form our organization and get away with it before the opening of the morning session. We can outline a little program for the next meeting of the Ceramic Society and in the meantime have something in their Journal which is worth while. (Applause.)

Secretary Randall: We have a little time at our disposal, and my friend Charles H. Bryan tells me that it will be impossible for him to stay throughout the week. He is on the program for tomorrow to lead in the discussion of "Over the Top in the Brick Business," and would like to be placed on the program this afternoon.

Charles H. Bryan, Detroit, Mich.

President Robb: If it is agreeable, we will hear from Mr. Bryan now.

Charles H. Bryan, Detroit, Mich.: I am on the program for tomorrow, and I am due in Detroit tomorow. My associate is here, and I asked him if he would not read the paper for me, and he said "Read your own paper. They might ask me something about it, and I would not know anything about it, so read your paper yourself." (Laughter.)

"OVER THE TOP" IN THE BRICK BUSINESS.

CHARLES H. BRYAN, DETROIT, MICH.

Mr. President and Gentlemen of the Convention:

A few days ago I received a command from our secretary that I was to say something about *"Over the Top" in the Brick Business.* I could either write or speak extempore, with the suggestion that inasmuch as the assistant secretary was very much over-worked, and in order to relieve our very good friend Miss Wallace, in the quietude of my den I have reduced to writing my understanding of what *"Over the Top" in the Brick Business means.*

It is idle for me to try to portray to you and even I am unable to draw on my own imagination as to the real feeling of our boys on the Western Front when they received the command *"Over the Top,"* for from this came the phrase.

Allow your minds to go back, for a few months, when we were talking in subdued tones as to the happenings on the other side, hardly daring to hope for good news; with this feeling at home, can you imagine the feeling of our boys as they stood in the trenches with shells bursting over them; machine guns' rapid death dealing fire and with all the approach of the blood-thirsty, unmerciful, uncivilized savage, "The Hun"; for a moment place yourself in their position and hear the order, *"Over the Top"*; even now, the armistice signed, my heart stops for a moment when I realize the awfulness of what *"Over the Top"* means. In what respect did the brick manufacturers back up the boys and what were we doing in support of the Government? As I recall, we had some very successful years before the war; with the declaration of war came the order to discontinue, or curtail the building industry, followed, very closely, with a 50 per cent. fuel allotment, and lastly, no building except upon permit from the War Industries Board. It is needless for me to tell you what effect this had on brick manufacturers—"you know."

Did you hear one complaint from any brick manufacturer? *No;* they stood like a Stonewall Jackson backing up the Government, not only with what means they had at hand, even to the extent that our only sons entered and offered themselves for the supreme sacrifice. Now that our trenches (figuratively speaking) are filled with brick, the order will soon be given *"Over the Top."* As I have stated before, that command was coined on the introduction of trench warfare. With the Army and war was training, so the command *"Over the Top"* found our boys well trained and moving with uniform regularity. In this same respect now, how are the brick manufacturers going to go *"Over the Top"?* Are we going to try it as an unorganized mob, or are we going about it in a systematized, well organized manner; so that when the command is given instead of a mob I hope our competitors in the building industry will find us well organized and under the able leadership of General Square Deal.

In order that we may make a successful charge, it is necessary that we make a minute inspection of ourselves; that we may be fit for the job, ever remembering that our leader is *General Square Deal,* and it is very important that at no time should we forget the meaning and personnel of square dealing, for it is my opinion that this is the most valuable asset, that it will put us *"Over the Top."* The other assets that enter into the support of our columns are quality and service. *Quality* must be maintained, *service* guaranteed.

Thus we may inspire confidence in those who deal with us, thereby receiving the moral support of our friends.

You, as a brick manufacturer, must stand inspection, just as our boys did when we sent the cream of young American manhood to the front. And if you are possessed of the qualifications of square dealing, quality and confidence, then identify yourself with some organization for the betterment of the brick industry. When I say "brick" I mean clay brick of what-so-ever kind or nature; because in organized effort lies success. As to whether this organization is local or national you personally are the best judge (I believe in both). In any event, affiliate and become a co-worker in the grand organized effort that is to be put across this year and place on the map in the building world the name *"brick"* with the positive assurance that clay brick is the best building material in the world, for on top of the ground or underneath. We have now made a statement, "it is up to us" to make good and prove that the statements made are true. How? By an organized effort and unity of action. I presume many of you are aware that we have organized a common Brick Manufacturers' Association of America, and we are going to hold our convention in Chicago on the 12 of February, and as an officer of this organization I invite every common brick manufacturer in America to become a member, and I want to make it just as positive as possible that this organization in no way conflicts with the N. B. M. A., but is organized solely for the interest of the *common brick.* Even though some of you question the advisability of this organization, it little behooves the least of us to say anything about the rest of us, and would it not be infinitely better for us all to pull together for the common good of all clay brick manufacturers?

Now, then all together for *"Over the Top"* in 1919. A splendid organized effort. The morale unaffected and supreme confidence in ourselves as the ultimate result. (Applause.)

President Robb: Does any one wish to speak on this paper? If not, this seems to bring us to the end of our afternoon program.

Anthony Ittner and J. M. Blair Made Life Members.

Secretary Randall: There are today a good many men in this country whose minds are on this convention. Their hearts are with us, though for one reason or another they are unable to be here. There are two men I know who are thinking of us at this time. One is Anthony Ittner of St. Louis, and the other is J. M. Blair of Cincinnati. They are charter members and ex-presidents of this Association, and I would like to see this Association honor them and honor itself by making them life members of the National Brick Manufacturers' Association.

I would like to see that grand old man Anthony Ittner, and the equally high class man J. M. Blair made life members. I would make that a motion, Mr. President.

Will P. Blair: I do not know whether our Constitution and By-Laws provide for action of this kind, but certainly it does not provide anything against this motion. I am heartily in accord, myself, with the suggestion made by Secretary Randall. The brickmaking fraternity owes something to these two men who have devoted their lives to advancing the business. We are very apt, being engaged in active business to overlook the advancement that has taken place in any important industry or program that is carried on in this country and which means progress and advancement. As a whole the brickmaking fraternity of this country owes much to Anthony Ittner and J. M. Blair. They have performed much good service of which we are the beneficiaries.

These benefits are seen and measured by the progress of the industry and the development that has taken place in this country. Anthony Ittner was a pioneer in the brick business and to him more than any other man is seen the character of the city in which he lives. There are certain things that develop in industry and in every city in this country. We see some cities developed in this country for which there is no apparent reason. I might mention for instance, the little city of South Bend, Ind. It is a magnificent little city, but there is no radical reason why wagons should be manufactured in South Bend, except for the fact that it happened to be the home of the Studebakers. There is no radical reason in the world why St. Louis is a brick built city in the midst of the richest forests that ever grew in the United States, but the reason is that Anthony Ittner lived in St. Louis all his life, and we have an example there of his effort, and his enthusiasm and his persistence day by day, every day of his entire life, almost. Anthony Ittner is now getting to be an old man, he has rendered splendid service to his country and to his craft. J. M. Blair has left his mark and tracks up and down the Ohio in his splendid service in the interest of the clay industry, and I want to second the motion. (Applause.)

President Robb: The Constitutionality of the question has been raised, but there is nothing in the Constitution against this procedure.

Secretary Randall: There can be no objection along that line. The Association now has four life members, Our Treasurer, John W. Sibley, Prof. Edward Orton, Prof. Bleininger and myself, all life members by vote of the Association.

D. D. Deeds, Lorain, Ohio: I have learned a few things in my life. I have found there is only one way to do when there is a thing to be done about which you have doubts. Go ahead and do it, the worst that can happen is that you get hell for it. I don't believe there is any question about the right or wrong of this question, and I think it would be a shame if we dd not elect them life members and send them telegrams to that effect. (Applause.)

George O. Berry, Columbus, Ga.: I suggest a rising vote on this.

President Robb: We are all unanimous in this, I think, but we will have a rising vote. It is unanimous and I will ask the Secretary to send telegrams to Mr. Ittner and Mr. Blair.

Secretary Randall: I have a telegram from one of our life members, which I am sure you will be glad to hear.

Washington, D. C., Jan. 31, 1919.

Theodore A. Randall, Secretary,
National Brick Manufacturers.

Regret I cannot be with you in Pittsburgh. Ordered to New York for similar duty from the fourth to sixth. Regards to all who inquire.

EDWARD ORTON.

(Applause.)

George H. Clippert: While we are sending telegrams, I wish the convention would send a telegram to ex-president Fritz Salmen. He is at Hot Springs, Ark., where he is suffering from a severe attack of rheumatism. Let us notify him that the convention is thinking about him and wish him a speedy recovery. I will make this as a motion.

Mr. Hummert: I second the motion.

Carried.

Warren Ittner, Belleville, Ill.: I would just like to say a few words. I appreciate very much the honor which you have done my father in electing him a life member. Of course, it is not for me to say very much about it, I had nothing to do with it, except that I voted for it. But I feel if my father were here he would make a reply, or at least attempt to. I doubt very much if he would be able to, because he would be overcome by emotion. I know he has the N. B. M. A. and its interests at heart. As Mr. Randall has said he is a charter member. I remember quite plainly when I was a little chap that Mr. Randall visited St. Louis; I remember being in the surrey with my father and Mr. Randall. I think he had been over to the brickyard visiting and came home to dinner. That was the time that the N. B. M. A. was started, either the initial convention had just been held, or was going to be held and Mr. Randall had come to St. Louis to get my father to come to the convention. Ever since that time my father has been a member of the National Association. I can remember he was quite proud when he was elected President years ago. I am glad you have taken the action you have today, and I know he will appreciate it. I want to thank you for what you have done. (Applause.)

President Robb: I want to ask a favor of you, and that is that you will be on time so we may open the sessions promptly, in order that we may expedite the business of the convention. While I may not be a Charlie Deckman on that score I hope to conduct the convention somewhat along that line. We have quite an extensive and interesting program, and if we do not meet promptly something may have to be left out or left undone, or some of the papers hurried over without proper discussion. This, as our secretary has been pounding into you for thirty years, is an educational institution—all I know about the brick business I learned here—and sometimes I think I know mighty little after all.

Anthony Ittner, St. Louis, Mo.

John Mercier, Detroit, Mich.: I move we adjourn until tomorrow morning.

President Robb: We can take that by consent.

SECOND SESSION.

Thursday, 10:00 A. M., February 6, 1919.

President Robb: Gentlemen, the convention will come to order. The first paper on our program this morning is by Mr. Thos. E. Wilson, of Pittsburgh, our new third vice-president. His paper is entitled "Tonnage Versus Per Thousand Basis of Selling Brick." (Applause.)

Mr. Wilson: I am sorry so many stayed out so late last night that they could not get in here early this morning. In writing this paper I wanted to start something, some little argument about how we should market common brick, this paper applies particularly to common brick.

TONNAGE VERSUS THE PER THOUSAND BASIS IN SELLING CLAY PRODUCTS.

THOMAS E. WILSON, PITTSBURGH, PA.

Mr. President and Gentlemen of the Convention:

In trade of every kind it is universally conceded that the best method of transaction is by a standard by which both buyer and seller are protected to the fullest extent against deception, mistakes and misunderstandings.

It is also a well known fact that most of our difficulties, troubles, disappointments and annoyances are the results of misunderstandings. A very good illustration of the above statement happened near this city just after we had declared war against Germany, and when all patriotic citizens were eager and anxious to smite the greatest barbarians of all ages. A woman whose sons had already enlisted in the service of their country was driving along the public highway one day and saw a husky young man milking a cow; she stopped her carriage and called out "Young man why aren't you at the front?" The young man arose and said, "My dear woman, you ask a very foolish question, I am naturally at the end of the cow where the milk is." Had these two parties been thinking and talking about the same subject no annoyance would have occured. It is also just as necessary for a man who is talking about the price of common brick, especially when he is trying to fix the price of brick by the thousand, to know what he is talking about. If he imagines all brick are the same size, that all brick are made out of the same kind of material, and that all localities have the same cost of production per M. it would only be natural to expect that a world war would be fought and ended before a definite price for brick could be established.

J. M. Blair, Cincinnati. Ohio.

Had the manufacturers of brick, especially common brick in this country been selling their product by the ton instead of by the thousand the Government would have fixed a price for brick just as readily as it did for tile. The difference in the size of brick has been for years the cause of much waste of time and dissatisfaction. I well remember that only a few years ago, before the common brick makers of this community organized and agreed to make a standard size brick, that the first question asked by the bricklayer or general contractor when you answered his telephone call was "What is the size of your brick?" Or if one of these gentlemen happened to come to your office one of the first things he did was to jerk a rule from his hip pocket and measure practically every sample in the office. This practice is still carried on to some extent for we have a few brickmakers yet who persist in making brick whatever size they see fit. If we were selling brick by the ton, however, a whole lot of measuring bricks would be eliminated and a great saving of the wear and tear of the hip pocket would be added to that already brought about by the prohibition of the liquor traffic.

Now, seriously, gentlemen, the size of a brick has a great deal to do with determining the cost of production by the thousand. A few years ago a number of brick makers in this community were making a very large size brick and using that as an argument in securing orders. They seemed to think that they could make a large brick as cheap as they could make a small brick. In fact they hadn't thought much about it. It hadn't occured to them how much raw material they were handling, how much more dryer and kiln room was required and how much they were cutting down the market by making a brick from ten to fifteen per cent. larger than the standard size. On the other hand there are brick makers, fortunately located, who are making as small a brick as they can market.

In all fairness to the public and in justice to all manufacturers of common brick I am firmly convinced that the tonnage basis ought to be adopted so that temptations for making a large brick or a small brick would be removed and a great saving of time and expense in counting brick would be gained. The average brickmaker probably has not figured how much time has been wasted by the loaders in counting the brick at the factory, or how much time the foreman or superintendent spends in checking up the loaders to see that no mistakes have been made. Besides the consignee usually puts some one on the jobs to count the brick when they reach destination. This counting at both ends of the line frequently results in a dispute as to who has counted the brick correctly. The ordinary teamster—no, not the teamster—he doesn't load or unload brick any more, but his assistants, will claim that they can throw from two to four brick at a time from a car into a wagon and keep count more accurately than it is done at the brickyard. One of our yards had quite an experience in filling a large order (not recently) that was somewhat irritating. After shipping three or four cars, and all of them had been reported 40 to 200 bricks short on each car, we loaded two or three more cars very carefully and added 200 to 300 brick extra to each car. These cars were received and unloaded, and not a word from our customer about extra bricks which we had put on the cars. We then called on the manager of the company and explained to him what had happened and our method of counting and checking, and he agreed to accept our count or the brick. Many another man, however, would have been pigheaded and insisted that his employes could count bricks just as well as anybody.

Now it is very evident that if brick were sold by the ton, with the understanding that railroad weights were to govern settlements, not only a saving of time and money would be gained by shipper and consignee, but another chance of friction and dispute would be removed.

Another very good reason why common brick should be sold on the tonnage basis is that many factories are making brick out of surface materials that are easily obtained, readily ground and quickly burned, and such a brick as you all know will not compare in quality and weight with a vitrified shale or fire clay brick. Makers of vitrified shale or fire clay brick not only have much more expense in securing the raw materials than those using surface materials, but they have more wear and tear of machinery in grinding and use much more fuel in burning. Selling these two kinds of brick in competition by the thousand surely is not as equitable as selling them by the ton. What is the real objection or reason, anyhow, for not selling common brick by the ton, except that we have gotten into a rut and cannot get out of it? Why, almost everything nowadays is sold by the weight instead of by measure or number. A few weeks ago, while waiting for a train, I stepped into a country store to buy a few bananas, and when I asked the price the clerk said 16 cents a pound. Now, that was the first time in my life that I knew what bananas were worth by the pound, but I readily realized, judging from experience, that it was much safer to buy bananas by the pound than by the dozen.

Just so it is with the common brick bought by the ton. The purchaser needn't worry anything about the size, for all brickmakers will soon find it will be to their interest to have their brick as near standard size as possible. Neither the buyer nor the seller need worry anything about the counting of the brick. The only thing to think about is the quality of the brick, and both buyer and seller should be frank with each other in their dealings and see that suitable brick are shipped for the work for which they are properly adapted.

Finally the very best reason why brick should be shipped by the ton is because the public generally has a better idea of what a ton means than of what a thousand brick means. If the people realized today that they could buy a ton of vitrified building material for less than $5.00 they would have very little to say about the high price of common building brick. Indeed, it is a well-known fact that the brick industry, for the money expended, furnishes more good, substantial building material than any other industry in the world. Is there any valid reason why tile should bring between $7 and $8 per ton and brick $5 per ton? We will admit there is a little more waste in making and burning tile than brick, and, for the same tonnage, the tile will require more room in the dryer and in the kiln, but the difference in price should not exceed $1 per ton at the very most. If the brickmakers today were getting but $1 per ton less than the tilemakers, they would be asking $18 per thousand instead of $15 per thousand. But why talk about the price of brick by the thousand any longer? Why not decide to quit selling brick by the thousand and hereafter make our quotations by the ton? The brickmakers never had a fair price for their product, never a sufficient margin of profit to take care of depreciation of kilns and machinery, and it is now time to sit tight until the law of supply and demand, the best price fixer in the world, gets busy, and then we will come into our own. The good times will come not by cutting the wages of the laboring man, but by requiring him to render more efficient service. Capital and labor must work in harmony, for each is dependent upon the other. Capital cannot afford to remain idle very long, and she will soon join hands with labor in a united effort in peace times just as she did in war times.

The banking strength of this country is several times as great as the rest of the world combined; our mineral resources are simply inexhaustible. and our foreign trade, just as soon as readjustment in business takes place, will increase by leaps and bounds.

I may be an optimist, but I predict that the next three years, not only in the brick business, but in all industries, will be the greatest era of prosperity and well-being in the history of our country. (Applause.)

General Discussion.

Secretary Randall: The gentleman who was to lead in the discussion of this paper, Mr. S. B. Dobbs of Philadelphia, is in attendance but is not present at this moment. This question may seem new to you, but it is a question, the solving of which would tend to stabilize the industry generally, and a lessening of price cutting incident to the variable size of brick. If any of you have had any experience along that line or have any thoughts you want to offer in that connection, we will be glad to hear them.

John W. Sibley: Selling brick by weight, it seems to me is one of the most practical, momentous and important questions we have had presented before a brick convention in many a day. This question of selling our brick on a tonnage basis rather than by the thousand seems reasonable. Mr. Wilson has covered the ground so thoroughly, there is little left to be said. There is one thought that occurs to me that may be helpful, and that is that the transportation companies have already adopted this proposition down in the South; down in our friend Stafford's territory particularly, some of the railroads in the earier days had their rates on brick so much per thousand, and still have. But as a rule throughout our country the rates are based on so much per hundred pounds or tonnage basis, and it takes a special clerk and some of your time to compute the prices per hundred into the price per thousand and tell what the price is going to be. In the language of the Scripture, "Brethren these things ought not so to be." We ought to all go on the tonnage basis and we would get more per ton than we get on the per thousand. This is demonstrated on tile, radial brick, etc. (Applause.)

Mr. Eisenhart: How would we determine the weight, depend on the railroad, or the yard have its own scales?

Mr. Wilson: Railroad weights, just as we do in the case of shipping coal or anything else. If you take the weight of the railroad, base your statements of the tonnage by the railroad.

C. H. Bryan: What would you do with your wagon delivery?

Mr. Wilson: You could not control that very well unless you had your own yard scales installed.

Mr. Bryan: Would that be fair to the contractor?

Mr. Wilson: I had more reference of course, to the railroad shipments. The local business would have to take care of itself somewhat different, just like a team in hauling coal. They have scales and they figure the wagons, and they compute they have so many tons on this or that wagon and haul it to the consumer, and the customer has faith in the man selling the coal, and is satisfied with the number of tons he is getting. If the brick man has customers in the city he can continue to haul the brick by the thousand, or the man buying the brick can insist on hauling them to the public scales and having them weighed there. The point I am trying to get at is this. There are more advantages in selling brick by the ton to all concerned than by the thousand. It does away with a great many chances for dispute and friction and criticism, and you get more for your material. Take terra cotta; that is sold by the ton. Tile is all worked out by the thousand pounds, and it did not take the Government long to fix the price at $6.10 and then $7.15 per ton, while they spent months and months trying to figure out what they ought to allow the brick man per thousand. You go to this locality and they get one price, and that locality and they get another. They didn't seem to know anything. They did not have the right man on the job; had to consult an engineer who had never been on a brick plant, didn't know one brick from another; did not seem to realize the different kinds of material or that it took more fuel for one than for another. They all looked alike to him. He said "A brick is a brick" when I was talking to him. It takes too long to educate a fellow like that. If he had served years in making and shipping brick then he would know something about it.

I have been thinking of this idea for some little time, have brought it up in our Pennsylvania Clay Club two or three times advocating it, but I have never got any one enthused except myself. I don't know why, because it is the most natural way. Because you get to doing a thing one way it seems the most natural and you hesitate to make a change. I believe we would get better prices and get more money for our stuff. When you come to think about it, there was a time in this city—I am ashamed to tell it—when we sold brick for $5.50 per thousand, vitrified brick. The idea of digging and pugging and drying and burning three tons of vitrified material for $5.00, and yet the brick man thought he was making money. I say we were deceiving ourselves. They don't make proper allowance for depreciation. This material is worth more. Not long ago I saw a long list of advance in prices in all kinds of materials. The list was something like thirty or forty inches long, all different materials, and of course brick was down at the bottom, as compared with the price of other commodities. I think I can say this truthfully, and you will agree with me, that for the amount of capital invested, the amount of time, amount of energy expended there is no other material in the world that you can get as little return as the brick industry.

Warren W. Ittner, Belleville, Ill.

William K. Hammond, New York: I am very much interested by the lure of getting more for our product—that is what touches me. That chicken a la king that we had last night at the Smokerette was so delicious that I came to the conclusion that chicken was composed of a whole lot of different types of chicken—different breeds of chicken, and they certainly got to kicking in my stomach along after twelve o'clock. Mr. Wilson says weigh your product and you will get more for it. Why if that was so gentlemen, we would have scales at both ends of the yard. It is the intellect in my opinion which controls in this business, rather than the kind of a scales or any other method. I may say to Mr. Wilson that I have the greatest admiration for his paper. He has said something so true that you don't need to make an affidavit, you know it. You have allowed your stuff to be sold at such a ridiculously low price that it has become a matter of comment that the brick manufacturer allows himself to be as putty in the hands of his customer. Why do you do it? That is why we are here in this convention. Secretary Randall says this is not a commercial body, but the first thing we think about is how much will we get for our brick and when will we get our money, and what security can you give us for the brick you are going to buy? In coming to this proposition of Mr. Wilson's of selling by weight, I beg Mr. Wilson to remember that all our product is brought from earth by labor. Labor is so keen and so shrewd that we as manufacturers should change places with them. I'll bet a big red apple that they would soon find a way to get more money. Now these fellows are spoken of as laborers. They put it all over us by their mentality. We have manufacturers who consult with their hired men and they say, 'I have sold so many brick today and got so much," and the laborer knows more than the man's own associates know. Now how quickly would he learn you were selling your goods by weight, and he would say "I am making them by the thousand—my stunt is so many brick for my day's work, Huh, I don't intend to do it any more. The boss is selling by the ton, and I will make by the ton. The boss sells his brick by the thousand, I will make them by the thousand." He will put it over on him, too, because the green brick weighs—well he will know what a green brick weighs in proportion to the finished product. It will be fine for you to say you want to get so much a ton, won't it? How are you going to do it? You are going to start an argument with him right away.

Mr. Wilson: I cannot answer that.

Mr. Hammond: I can remember way back on the farm that one of the hard things to do was to lead a calf. If you did not use the proper method, the calf would lead you instead of you leading the calf. I am here to be led.

Mr. Wilson: I was raised on a farm too, and I know if you don't control the calf properly, you will be pitched over the back fence. There is a way to control these fellows that get out the clay. Do as you do at the coal mine, pay so much a ton for getting out the clay. I happen to be interested in a coal mine as well as a brickyard. The coal as it is brought out is weighed. The fireclay people pay by the ton, and they have to get out so many tons per day if they want good wages. We could adopt the same method, pay them so much per ton for getting out the shale, and it would pay us to put in scales and weigh it. You need not worry about the laboring man. He can tell you how many tons of raw material it takes to make a thousand brick. That would be the easiest thing of the whole business to have these men agree to furnish the material to the pan at so much a ton, just as easy as to have them do it by the thousand, and with less friction as I look at it. I do not see that it would interfere at all. I do not see why it could not be handled just as easily and satisfactorily to the laboring man. We are not the only people so far as I know that are very slow to take hold of anything new, any new method. If we can show the man that this is going to touch him so far as money is concerned, he is going to be led. Then, too, tile many times is in competition with brick. There was a time when it was not, but now you get it everywhere, the tile men get from $2.00 to $3.00 more per ton for their tile than we get for brick. It is very little more trouble to make tile, we have made them on an ordinary brick plant, there was not much waste in making tile. The only argument they have for getting more money than the common brick man gets, it takes up more room in handling, and more dryer room and more kiln room. That is about all, and, of course, it goes a little further in the wall, but if a man wants a solid brick wall, he does not want a tile wall. There are places where tile can be used to advantage, and that is where they should be used, but there are places where tile will not fill the bill. We ought to be getting today $6.00 a ton for brick, or even more. The tile men are getting $7.50 and are probably going to demand more. If we were getting $6.00 a ton for our brick, we would be getting right now in this district something like $18.00 a thousand, while the best price brick are selling for at the factory is $15.00 and some are taking less. The public would see the justice of it. The average purchaser has no more idea about the number of pounds in the material than the man in the moon. So much brick for so much money, and because we always did sell brick cheaper than anything else, he says, "My goodness, $15.00 a thousand, we used to buy them for $6.00 a thousand" and he thinks we are highway robbers. If we could show him we could furnish more for a ton cheaper than he could buy other materials by the ton, that he could put in a wall, he would stop thinking we were trying to rob him. How many brick men did you ever see get rich. There is only one compensation about a fellow being in the brick business. He has never had any trouble in paying excess war profit taxes. (Laughter.) Never troubled with income taxes. I don't blame the public, but we have never made any money in the business worth talking about. If I were going to buy brick I would buy them just as cheap as I could. The brickmakers themselves are to blame. We don't seem to understand that we must have more than just a mere ordinary profit. Plants will wear out all the time, replacement of kilns, and replacement in machines are not figured in our costs, as they should be. I am in favor of this tonnage basis, and so far I have not heard any very good objections offered by any body why it should not be put into practice.

Charles H. Bray, Helena, Mont.

C. J. Weber, Chicago, Ill.: Most of the brick shipped into Chicago and out of Chicago go by freight, and the railroad has set an average weight of four pounds to the brick. In doing that they eliminate the weighing of the brick, and we would have to reach another agreement with the railroads, and Lord knows we can do nothing with them now. In normal times if one million brick comes down the Hudson River there is no chance to weigh them. I think this question is so large it ought to be left to some committee to get in touch with the larger manufacturing centers and see what they want. As far as price is concerned, any manufacturer who does not like his price, why don't he raise it? It is up to him. In some of the plants in the Chicago district, the brick weigh a little more than they do on others. If we sell brick by the ton the plants making the heaviest brick would be shut down, and contractors instead of carrying rules would be carrying scales. They want the biggest size, they want the world; they figure their building in so many cubic feet of brick masonry, they don't figure it by the ton, and that is why we are still selling brick by the thousand.

Warren Ittner, Bellville, Ill.: There is no question but what that paper contains a great deal of merit. I think the subject deserves a great deal of discussion and consideration. I would suggest however that it is largely a matter of mathematics—perhaps a matter of psychology, the matter of getting more for your brick. I have bought coke from Kentucky at so much a ton, and have the cars come into the yard dripping with water, and I guess I paid the coke company for a good many tons of water. I have also shipped brick by the average weight from our plant in the winter time, and I suspect I have also sold my customers a great deal of water. The brick manufacturer may be tempted to fill his brick with water. (Laughter.) There is a question more important in the sale of brick than the question of weight. That consideration makes tile a strong competitor of brick, and I do not know how we are going to get around it. We made some figures in St. Louis between tile and brick, and we figured that if we gave our brick away, at the price tile were selling for, and a less quantity of mortar required to lay them in the wall, which is a large item, that if we gave our brick away, the fellow could buy tile and build a cheaper house. The thing we have got to do is to show the builder that brick will answer his purpose better than tile. As far as price is concerned, in the past, it has not been a thing to laugh at. It has been pathetic. We have simply got to get more or go out of the business. Brick has come up in price lately and if the brickmaker will know his cost and hold his price, brick will never go back to a losing game again. So far as raising the price in selling by the ton I do not believe it would cut much figure. We used to sell brick in St. Louis by strictly merchantable grades, including sand mold or face brick and soft brick and a certain amount of hard. We got a number to try to sell by quality, sell soft brick for so much, face brick for so much, and hard brick for so much. We followed the plan on the east side of the river for a good many years before it was put in on the west side, and that raised the brick $2.00 or $3.00 per thousand. It is so much for bront brick, and so much for hard and so much for soft brick. The contractor puts them where they belong, and when they get to the building he takes care of them, and don't allow them to be mixed up, I think it is merely a question of mathematics. Each locality figuring whether it would be an advantage to sell by the ton. I believe we can take it up in St. Louis, when I get home, and speak to some of our manufacturers and report to Mr. Randall whether we can use this method to advantage. I think Mr. Wilson's idea should not be dropped without something being done, but should be taken up and investigated.

President Robb: This is a most interesting discussion, but we have a number of interesting papers. I think we might act on Mr. Ittner's suggestion and refer this matter to our Committee on Research. I think this comes in their line of work.

John T. Hummert, Quincy, Ill.: There is just one point I want to bring out in this connection. I do not think we would have any trouble about getting our brick weighed. Maybe most of you belong to the Weighing Association. They send a representative three or four times a year and give us a stamp and every brick that goes out, their stamp goes on the bill of lading. Now that could be done if we adopted the tonnage basis instead of the per thousand, and as that point had not been mentioned, I wanted to bring it out.

R. C. Burton: I quite agree with my good friend Mr. Hammond that to sell brick by the tonnage basis ought to bring us more money—a greater profit. Of course, you can adulterate the brick; the shale man could not, but these soft mud fellows could put in 20 per cent. water, they have 20 per cent. volume, and if they are selling by the ton, the shale brick man would have to cut their brick 20 per cent. in order to get the volume in the tonnage basis. A thousand shale brick will weigh anywhere from 1500 pounds to a ton more than the same size soft mud brick. We would have to have them classified, and we would have to go out and educate a man that the shale brick were so much better than the soft mud brick, and the first thing you know we would have a soft mud brick men's convention and a stiff mud men's convention. (Laughter.)

President Robb: As Mr. Hood, who is chairman of our Research Committee is not here, and Mr. Ittner is the next man on the Committee, I think he is the one to take charge of this question.

Douglas F. Stevens, Cayuga, Ind.: If I may say a word befor this very able Committee takes this up. One point has been overlooked. When we sell clay products, we are not selling weight, we are selling service. Service in the brick business means covering a certain area, not the way in which that is covered. There is the question of sufficient structural strength to carry the weight, but there is more than that in the way in which that area is to be covered, and both these questions have absolutely no relation to the material going into the wall, so it would be a very serious question in selling face brick to put it on the weight basis. With common brick, I question whether it would be successful.

President Robb: My experience is that the face brick fellows are able to take care of themselves, we are not worrying much about them. Our next paper is "Labor Problems." We are honored this morning by having a representative of the Government with us. Through the courtesy of Secretary Wilson of the Department of Labor, we have Dr. Nicholas VanderPyl, who will talk to us on "The Labor Problem."

OUR LABOR PROBLEMS.

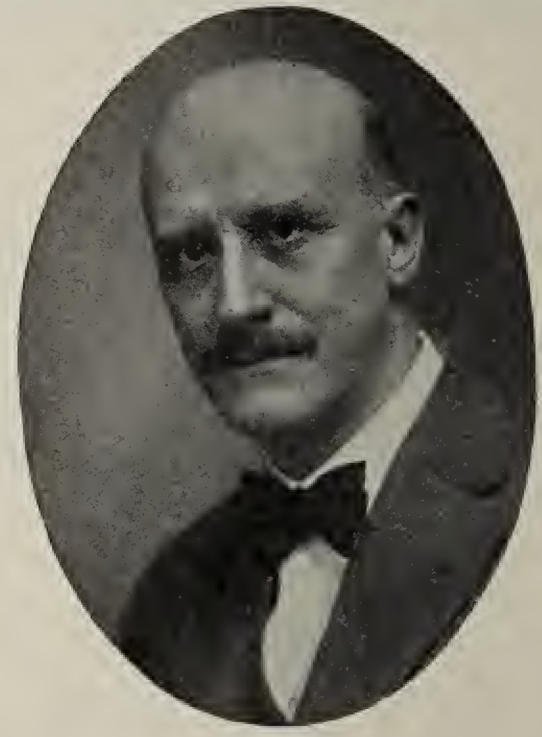
Dr. Nicholas VanderPyl, Oberlin, Ohio.
Representing the U. S. Department of Labor.

Mr. President and Gentlemen of the Convention:

I presume you all recognize that the labor problem is the most serious problem confranting the Government and the public today. Before the Civil War the slave power dominated the whole legislation of the country. What the South wanted and what the slave holders of the South wanted was written on the statute books. Occasionally they gave us compromise in the way of the Wilmot Proviso and the Henry Clay compromise; but in the main they dominated the legislation of the country. When the slave power was destroyed there followed that tremendous period of expansion and promotion and development of the country when the business interests became dominant, and practically controlled the whole legislation of the country. Under the circumstances new ideals and standards were written on the statute books.

Now, there is another shift. The controlling factor in legislation today is undoubtedly the labor element. The power held by the slavocracy before the Civil War and the business interests after the Civil War, is now held by the labor interests. The passage of the Adamson Law undoubtedly marked an epoch. Hereafter labor is to be more dominant in the legislation of the country than it ever has been before. It is not for me to say whether it is wise or unwise. I am simply calling attention to the fact; and a fact, as Napoleon once said, is like the point of a bayonet, "You can do anything with it but sit on it."

The war has had its compensation. You have heard the story of the Irishman who was badly wounded. He was pretty badly battered up—almost beyond recognition. One of his comrades recognized him and said: "Pat, this is a terrible war"; and Pat, with his native Irish wit, said: "Yes, it's a terrible war, but it's a damned sight better than no war at all." (Laughter.) I think we have come to recognize that, with all the waste of it, and the death of it, and the destruction, the war has been a blessing in disguise to this country and to the world.



Herman L. Matz, Chicago, Ill.

We entered into the war in a state of military unpreparedness; and worse than that, in a state of industrial unpreparedness. We had an army of 180,000 men. We developed it into an army of over 4,000,000 men. But the mobilization of the man power for industry was a more difficult task for the Government to meet. It was comparatively easy to mobilize an army with the selective service law. The volunteer system would have given us just as big an army and just as good an army. The romance and glamour of the soldier's life is yet strong enough to attract the best and the bravest of our young life.

Some one has said that the battle line extended all the way from No Man's Land in France to San Francisco, and that civilian industrial forces were just as necessary to the winning of the war as the soldier at the front. There never was a war in which the industrial forces were put to the test as in this last war. It took the entire productive resources of the country to win the war. This was a fact that a great many of our manufacturers overlooked, and could not understand.

At a convention of salesmen in Detroit last April, there were only three men who could be made to understand that there was not enough productive energy in this country to conduct business as usual and win the war. In a certain city which I visited, the manufacturers complained to me that the Government had curtailed their production. That was unfortunate, but they failed to understand that we could not beat the Germans with anything but guns and ammunition. We had to have guns, ammunition, aeroplanes and all the modern enginery of destruction if we were to win this war. This was the most difficult thing to impress upon the manufacturers of the country.

In 1916, it was estimated we had about 8,000,000 industrial workers in this country. During that same year, we found there was a labor overturn—men who were hired and fired—to the number of 32,000,000; 400 per cent. On an average every man in industry changed his job every three months. By the artificial stimulus given to industry by the war that overturn increased to over 500 per cent. It would have been absolutely impossible to win the war if this tremendous waste had been permitted to go on.

There are a number of reasons for this great labor overturn. Permit me to state a few of them. As long as the lure of opportunity exists in this country, there will always be men who will rise from a lower to a higher industrial strata. The Russell Sage Foundation made an investigation in 78 cities of this country some years ago, and found that only 16 per cent. of the people of this country were living in the place of their birth. We are a race of vagabonds because of this lure of opportunity, and as long as America continues to be America, the land of opportunity, we hope this cause for the labor overturn will exist.

But if we are to have industrial stability and peace in this country there are some changes necessary. The first of these is a closer human relationship between the employer and the employe. Some of you who have read Charles Dickens "American Notes" will recall the account of his visit to the textile city of Lowell, Mass., in 1846, in which he speaks of the fine human relationship which existed between the employer and the worker, at that time. They were educated in the same schools, belonged to the same clubs, went to the same church, and called each other by their first names. There was absolutely no division. He found a paper published by the workers called "The Lowell Offering," which in the work of Iney Larcom, has made a permanent contribution to American literature. Then came the growth of the factory system; and this intimate human relationship disappeared. The management went one way and the worker the other, with no tie between them. Men were hired and fired by subordinates and there was no approach to the man or the men controlling the industry.

George M. Krick, Decatur, Ind.

In a factory in Illinois which was doing war work, there arose a little trouble between the management and the machinists. The machinists had been receiving a bonus, and the contract with the Government eliminated the bonus system. Wisely or unwisely, it is not for me to say. They had been receiving 47 cents an hour, with a 10 cent bonus. The machinists wanted the bonus continued. Finally, an offer was made by the management of 5 cents, and if conditions warranted the advance to 10 cents would follow. The machinists went over in a corner to talk it over; but one man wanted the whole business. There is always one man in an organization who wants everything, whether it be an organization of manufacturers or workers. While they were discussing the matter, and trying to win over the one objector, the foreman came along and said: "Well boys, what are you going to do about it?" And this objector blurted out: "We are not going to take it." The foreman lost his head and said: "Then get to hell out of here, the whole bunch of you." And out they went. In another plant with which I am familiar, a man left who had been working there for two years. I was in the U. S. employment office one night, and two men outside were looking at the posted list of jobs. One said to the other: "When you go inside you can't get those jobs." The other said: "I can always get a job." The trouble with you fellows is that you want big wages, short hours and don't want to do nothing." The big fellow said: "Then why are you quiting your job?" "The foreman was drunk all the time," he said. "But I got a better job than I had five minutes after." I went out and talked to the little fellow. I found he had been working in that place for two years. He left because the foreman was cantankerous, which he mistook for drunkenness. Now I maintain that when a man has worked in a place two years, and has the spirit this worker had, he is an asset to the business, and there should have been some effort made to hold him. There should be some personal interest in a man like that.

It is absolutely impossible for an employer employing 20,000 men to keep close to all of them. But by the introduction of personnel departments it is possible to approximate the old-time personal relationship.

In the Ford establishment in Detroit there is a most efficient personnel department. It is said that Henry Ford knows what every man in his employ has for breakfast every morning and what he has been doing the night before. And he has reduced his labor overturn from 467 per cent. to less than 80 per cent, simply by the establishment of a human relationship. H. P. Kendall, at the head of a printing plant in Norwood, Massachusetts, by the introduction of a personnel department has reduced his labor overturn from 180 per cent. to less than 10 per cent. I could multiply indefinitely such instances.

Then, too, if we are to prevent this wasteful labor overturn there must be more democracy in industry than there has been in the past. I think all of us who have studied the industrial situation know that collective bargaining is usually unscientific and uneconomic. Workers meet in their labor hall, and they decide they will ask for 60, or 70 or 80 cents an hour. Employers decide they cannot pay that and meet competition. Then the fight is on. Collective bargaining will never solve the labor question. The trade union philosophy of higher wages, shorter hours and restricted production leaves the problem just where it is. It can never make for industrial stability and peace. (Applause.)

This being so, we must have some sort of a representative system, if we are going to get the best out of the men. I think you gentlemen must recognize, if you have ever been employes yourself that there is little incentive for a laboring man to do his best. If you knew that you were going to get the same amount in your pay envelope on Saturday night, whether you had worked hard or loafed on the job, what incentive would you have to do your best. You say every man ought to be conscientious, but after all men are not conscientious about these things. Emerson once said, "Every man is as lazy as he dares to be, and we are all mighty brave."

Some incentive must be offered to men if we are to have increased production. You cannot get it by the trade unions' system of collective bargaining. In earlier days the laborer produced more than he could consume, and after a period of ten or fifteen years, there came a crisis. Overproduction was followed by a period of unemployment. By a crude intuition the worker found the way to avoid this was to loaf on the job. And there originated the restriction of output on the part of the worker.

Now we have got to make the laborer understand it is up to him to produce and produce increasingly. And the only way that can be done is by the introduction of some industrial democracy. Four or five centuries ago we fought for religious and intellectual democracy and we won out. Then followed the fight for political democracy, and that has been won. The fight that is going on today is for an industrial democracy. Not that the workers are going to run your business; but if you are going to get the most and the best out of your men, they must be permitted to have something to say about the conditions under which they work. And it must be done in the kindliest and friendliest way. Once it was thought that political democracy was impractical. The Bourbons of France could not see where the common people could get ability to run the Government. But there came that terrible revolution in France, which Carlyle characterized as truth clad in hell fire. We do not want industrial democracy to come in that way. It has come in that way in Russia. We should be saner and wiser here in meeting the situation.

The far sighted business man has seen industrial democracy is practicable. In Kalamazoo, Mich., there is a man by the classic name of William Shakespeare, who employs about 500 men. Some years ago he started a co-operative scheme, which I am told has worked finely. Three representatives of the workers sit on the board of directors. They have a vote on the board just like the representatives of the management. They have a voice in the shaping of policies; and they know all the working of the concern. At the end of the year, when an accounting is made, the following disposition of earnings is made: six per cent. for capital invested, a certain amount for depreciation; a certain amount for a sinking fund for lean years, and what remains is divided fifty-fifty. Mr. Shakespeare has said, "This is not charity or philanthropy. It is simply good business sense." At the Dennison plant in Framingham, Massachusetts, the workers are gradually buying up the stock of the concern; and not long ago, Mr. Dennison said the help were buying up the stock so rapidly that they would soon control enough stock to fire him if they wanted to. He saw no reason why the workers should not have as much right to fire an inefficient boss, as the boss should have to fire an inefficient worker. The employe must be given a look in somewhere if he is to do his best, and if industry is to rest on the basis of real efficiency.

Another fact is the great difficulty at present of bringing the man and job together. We found that out during the war, and had it not been for the establishment of U. S. employment agencies, which stabilized labor, we never could have gotten out the production to win the war. During the last seven months of 1917, the government had an available appropriation for carrying on the war of $12,000,000,000. A billion dollars is a great deal of money. If there were living at the beginning of the twentieth century a man who was born at the time Christ was born, who possessed a billion dollars at the time of his birth. If at the moment of his birth he had started in to spend $1.00 a minute, and had kept up that break neck speed of spending money for nineteen centuries, at the beginning of the twentieth century, he would still have had some money left of his billion dollars. On the 31st of December, 1917, only three of the nine billion dollars had been expended. Industry was so disorganized by reason of the fact that the man and the job could not be brought together, that we could not accomplish the things industrially that had to be done.

In Knoxville, Tenn., last July, there was a scarcity of common labor. A darkey down there conceived the idea of starting a labor agency. He did not even have an office. He had a sign on his hat—all his overhead expenses were on his hat. He recruited 400 workers, charged each a fee of $2.00, the transportion was paid by concerns in Nashville. He took the 400 men from Knoxville to Nashville. Then in order that his trip back to Knoxville might not be profitless he recruited 400 men in Nashville, received a fee from each man of $2.00, and brought them back to Knoxville. That darkey was making about $8,000 a month, which was a very reasonable compensation for a darkey who had not received a college education.

In Norfolk Va., there were about 10,000 mules to be shipped over—they had already shipped 350,000 mules. At the same time there were a hundred of car loads to be unloaded into a refrigerating plant. There was not enough common labor in Norfolk to take care of those mules and unload those cars. The manager of the refrigerating plant sent out a darkey to recruit for common labor, authorizing him to pay fifty cents a day more than the current rate for common labor. When the manager checked up his recruits he found he had hired forty of his own men over again at an increased cost of 50c per day. At the same time newspapers were teeming with ads like this: "Machinists wanted in Cleveland, or Buffalo, or Erie. Eight hour day. Time and a half paid for over time. Bring your old clothes ready for work." And it seemed for a while as if the whole industrial population of the country was on a crusade for a new job. Only the intervention of the Government through the U. S. Employment Service straightened out this situation.

Now the war is over, and you brickmakers can have all the raw material you want, and there will be no curtailment of production, but the labor problem is still with us. We know what is going on over on the other side. Russia, a nation of 180,000,000 people, is controlled by one of the most radical socialistic regimes ever instituted by any government. All of the private property has been confiscated by the State, all the land has been taken by the State. No man who makes a profit from investments or by employing men has a voice in the government. In Germany it is not so radical. But socialists are in control. So we have two great nations, in which there are over 250,000,000 people, living today under a socialistic regime. It has been said that had it not been for the victory of the Allied Army, Bolshevism would have risen in France and England. It was right at the surface. And there is more or less of it in this country today.

I do not know what the figures are for Pittsburgh, but in Cleveland today there are 80,000 men out of work, and I venture to say there may be as many as that in the city of Pittsburgh. In Detroit, there are 40,000 out of work. These men find it impossible to get work. Bolshevism in Russia and I. W. W. in America are symptoms of a social disease which must be cured. You can swat a boil on the back of your neck all you please, but you have got to get back of the trouble that causes the boil to cure it. The I. W. W. invaded the city of Lawrence, Mass., in 1911 and 1912. Let me tell you of the situation that obtained there. About 22,000 workers were on a strike. When these workers worked full time the average wage was $8.76 per week. 33.2 per cent. actually received less than $7.00 a week. Only 17.5 of that number received more than $12.00. There was one house in which there lived 74 persons; it was not the Hotel William Penn. These 74 people constituted 14 families many of which lived in one room. Among them were 22 wage earners and the average wage was $6.66. When you get a condition like that something is going to happen. These people were not I. W. W.'s but they had a grievance. They were living below the line of a decent economic existence and a nation which connives at a wage which is insufficient for a decent economic existence is courting a revolution. These people were immediately enrolled in the I. W. W.'s when the leaders came. Any one else could have enrolled them just as well. Any one of you gentlemen could have led them if you had been interested in a redress of their grievances. At the close of strike, all were members of the I. W. W. When I was in Lawrence a few months ago there were less than 150 card members of the I. W. W., all because conditions had changed.

The American workingman is naturally conservative, more than the English or French workingman; but that makes it all the more necessary that manufacturers and employers of labor should be exceedingly anxious about what the future has in store for them. This unemployment which exists in this country today is a most dangerous phase of our industrial life. A hungry man makes no fine moral discrimination. Let this go far enough and it will not be long until we shall have an amount of radicalism that will be really menacing.

The Government is interested, and is trying to stimulate building and construction. The Governors of the States have been consulted, and they have been asked to begin immediately the work of constructing public buildings which were arrested by the war. People intending to build homes are being asked to go ahead at the present time. Building material is coming down. The American Radiator Company has reduced its products 25 per cent. without cutting wages. The United States Steel Company has done the same. But wages will not come down. The unprecedented wages paid during the war may come down, but pre-war wages will not come down. Carpenters and builders in Cleveland have just made a bid for $1.00 an hour. In Elyria, Ohio, they have made a request for ninety cents. The only way in which we can possibly get a reduction of the cost of living is by starting something. The Government has started on a program of building, which will undoubtedly be very interesting to you brickmakers. The Department of Agriculture, the Department of Labor, and the Department of the Interior all have reconstruction plans before Congress; but Congress seems to be busy maneuvering for a political position for the campaign a few years hence, and instead of helping in this reconstruction plan, is simply talking and talking. One party seems to be as bad as the other. You business men may have some influence to get Congress to do something. The various Departments are ready to do something, but they cannot do anything unless they get their appropriations through this Congress which ends the Fourth of March.

We have this great labor overturn. If it continues we are in danger of industrial strife, but much of it can be avoided by establishing a human relationship, by democratizing industry, by some sort of an agency by which the man and the job can be brought together. Then with that splendid initiative which has always marked the American business man, and by the co-operation of the Government, we may start this era of reconstruction, which will probably lead to the greatest prosperity this country has ever seen.

The Government is willing to do its part. What we want at the present time is that Congress should support the Administration, and you can use your influence with them, gentlemen, and see that something is done toward getting that start. (Applause.)

General Discussion.

President Robb: Mr. Spencer Duty was to have led in the discussion of this topic which has been so splendidly handled by Mr. VanderPyl.

Secretary Randall: Before going into the discussion of this paper, I would like to ask for a rising vote of thanks to Dr. VanderPyl for ths splendid address and to the Labor Department who sent him to us.

President Robb: I will second that motion myself, and call for a rising vote.

Carried.

Warren Ittner: Dr. VanderPyl has asked for our co-operation on this line in getting Congress to get a move on and help in the way of building. It seems to me that some recognition of his request should be taken. I wonder if we cannot have our resolution committee draw a resolution to be sent to Congress stating that we will do all in our power and asking them to co-operate in inaugurating a building program.

President Robb: I think, Mr. Ittner, if you will prepare a memoranda of that resolution and submit it to the Resolution Committee it will be taken care of. What is the next in order of business, Mr. Secretary?

Secretary Randall: The next on the program is "Bricks Without Straw," by Professor Ira H. Woolson, of New York City, who comes to us through the personal efforts of another of our new Committees of which Mr. H. H. Stafford is chairman—the Committee on Fire Prevention. It is through Mr. Stafford's instrumentality that Mr. Woolson is with us today to speak on this important subject. (Applause.)

Mr. Woolson: I have been interested in your session, have listened to the paper by Mr. Wilson and to the splendid talk given by Mr. VanderPyl on the Labor Problem which is very near to the hearts of all of us. It is a very vital question for you to consider. I wish also to talk to you this morning upon something that is of interest to you but along different lines. (Applause.)

"BRICKS WITHOUT STRAW."

BY IRA H. WOOLSON, CONSULTING ENGINEER, NATIONAL BOARD OF FIRE UNDERWRITERS.

Mr. President and Gentlemen of the Convention:

The making of brick dates from very early times, and was practiced by all the civilizations of antiquity. We know that well-burned brick were extensively used by the Babylonians 3,800 years B. C. There were many other nations, however, who were brickmakers, but who did not learn, or at least practice, the art of *burning* them for 2,000 years or more after the Babylonians are known to have used burned brick.

The Egyptians manufactured brick upon a large scale, but they, in common with other peoples of that period, made their brick of river mud and dried them in the sun. They early learned that the mud alone lacked cohesion and made an unsafe wall, and it was found that chopped straw mixed with the mud or clay was a simple and efficient binding material which vastly improved the quality of the brick. Sun-dried brick were made in this way for many centuries; in fact, are still made to some extent upon the banks of the river Nile.

Those of you familiar with biblical history will remember that unhappy experience of the Israelites, when, as slave brickmakers in Egypt, they were compelled by Pharaoh to go out in the fields and highways and gather the necessary straw, and then make as many bricks in a day as they had previously made when straw was furnished them.

Straw was scarce, thus making the task exceedingly difficult, and the unfortunate fellow who failed to meet the requirements received a beating for his neglect. It was this cruelty which influenced Moses to take the part of his countrymen, and finally culminated in that famous journey toward the Promised Land.

I will not weary you by further recital of ancient history. The point I wish to emphasize is, that sun-dried bricks made without straw or some equivalent binding material, lack the cohesiveness necessary to develop their full value. In other words, "bricks without straw" were unreliable as building material. With this thought in mind, I shall use it as a simile to indicate the impossibility of producing reliable fire-resistive buildings even with well-burned, high-grade brickwork, unless it is reinforced with certain "straws" consisting of carefully planned structural features and suitable building equipment necessary to develop the full value of the fire-resisting qualities possessed in such large measure by brick.

Not long ago a certain brick promoter had for his slogan, "Build with brick and be safe from fire," and that idea is frequently promulgated in many forms. Taken at its face value, the idea, namely, that a building with brick walls is an entirely reliable, fire-resistive structure, is misleading and fallacious. It is a case of "bricks without straw," and I wish to talk to you brick manufacturers today upon the necessity for using certain "construction straws" with your brick, if you would have that old and reliable building material develop a reasonably high percentage of its fire-resisting quality.

As usually constructed, I doubt if the average brick building as a whole has a fire resistance of over 10 per cent. of that of its walls. This is discreditable to our engineering and architectural intelligence, and productive of shameful economic waste of manufactured resources.

I hope to win your aid in securing the introduction of such proper "construction straws" into brick buildings as will make them really efficiently fire-resistive.

Let me say, right here, that the defects which I shall criticise are by no means peculiar to *brick buildings*. They are just as prevalent in hollow tile, stone and concrete buildings. I am using brick buildings as my target merely because you are brickmakers, and members of this national organization devoted to your business interests. Furthermore, since brick is such an *ancient* and *honorable* building material, and probably used more generally than all other building materials combined, barring wood, it seems fitting that the brickmakers should take the lead in a united effort to remove this blot upon their escutcheon.

You manufacture a material tried by fire and adapted to withstand flame and high temperature for long periods. It is used to build chimneys, fireplaces and furnaces, and in such capacity has performed its function successfully for a thousand years, and yet the world is full of tottering fire-ruined walls marking the site of once splendid buildings, now desolate monuments attesting the fire hazards of brick buildings improperly constructed. Isn't it a ridiculous anomaly, and one that our boasted twentieth century progressiveness ought to eliminate?

I never see such shattered, smoke-scarred remnants of noble buildings but I long for revenge, and feel that some one should be penalized for such needless waste.

Now, what are these "straws" which we must use with brickwork to make buildings safe from fire? The straw used by the Egyptians in their brick was, owing to scarcity, of various kinds, such as stalks of grain, grass, weeds and reeds, some large, some small. They were all useful, but some served their purpose better than others. It is the same with "construction straws;" they vary in size and importance.

The most essential is the elimination of communicating openings, large and small. I am inclined to think that the small openings are really the worst offenders because of their obscurity and general prevalence. Several of them are frequently overlooked, even in well-constructed buildings.

Buildings with large open wells or rotundas connecting several stories, which are common in public buildings, and frequently found in office buildings, hotels and department stores, are a type of architecture which should be thoroughly discredited, except possibly in public buildings, where it should be used only with special safeguards.

I wish to focus your attention specifically upon public buildings, because they are peculiarly subject to intercommunication defects which cause rapid spread of fire. Such buildings are usually built of brick, even though frequently veneered with stone. They house large quantities of legal records, official documents, rare books and pictures, also historical papers and relics of great value. The burning of such a building is nearly always a public calamity, so there are at least *two* good reasons why you should be interested in preserving them.

As a rule, the architecture of such buildings is of imposing monumental character. They lend dignity to the municipality in which they are located, and are the pride of its citizens. They are well constructed with solid masonry walls, fire-resistive floors and roofs, high ceilings, massive windows, marble stairways, an elevator or two, large, heavy paneled doors, and all the features which, to the untrained eye, constitute a "strictly" or "absolutely fireproof building," and they bear that reputation. When they burn, as they frequently do, it is a puzzling surprise to the population. The fire is considered mysterious, and almost as much of a miracle as would be the burning of a stone pile. Usually the only mystery about the burning is that it had not occurred before.

The burning in recent years of the Houses of Parliament, in Ottawa, Canada, the State Capitol at Albany, N. Y., and the Federal Custom House at Bangor, Me., are typical examples of many which could be mentioned illustrating the weakness of this class of buildings.

Incomplete records show that 64 city and town halls were reported burned between March, 1914, and October, 1918. During the same period fires occurred in 37 court houses, 8 libraries, 8 jails and 15 miscellaneous public buildings. Some of these were absorbed in conflagrations, and would probably have been lost irrespective of the care taken to reduce the internal hazards, but many of the fires originated within the buildings themselves, and very often the destruction was complete. The list merely indicates the weakness of such buildings against fire. Every one of those ruins was a wayside advertisement testifying to the ignorance or carelessness of the architects and builders. Masonry walls did not protect them.

The greatest danger in such buildings is the open connections through all stories. Commonly, there are two stairways, more being added in proportion to the size of the building—the grand staircase near the main entrance, the service stairways at the rear or sides of the building, and often small private stairways coupling affiliated offices in different stories. These stairways are seldom inclosed, and therefore, with the hallways, constitute a network of open channels throughout the whole building, favoring rapid distribution of a fire.

The stairs leading from the basement or cellar are commonly cut off by doors at the first story level, but this advantage is usually depreciated by an elevator shaft which is open in the basement story, and having artistic metal grills as its only protection in the stories above.

Sometimes small hand-operated book or document hoists will be found, also dust or waste paper chutes, with an occasional ceiling ventilator from the top story rooms into the attic, which latter space is liable to be a repository for all sorts of inflammable material.

The number and variety of such communicating channels in some buildings would almost lead one to believe that a fire fiend had planned them with diabolical cunning to insure the complete destruction of the buildings if ever they get on fire. Some of these minor flues are frequently installed long after a building is erected, and were the brilliant idea of an occupant who thought only of convenience, and had no conception of the danger he was creating.

Although the hallway floors of a building may be of tile or marble, and the stairways built entirely of brick, stone or metal, with no combustible material about them, they are nevertheless a serious fire hazard, because they act as flues to carry the hot products of combustion from a fire in one part of a building to another where combustible material is present. The danger of this method of fire transmission is little appreciated by those who have not studied it.

When air is heated to 1,000 degrees F. or over—which is a temperature quickly reached in most fires—it will ignite instantly everything combustible with which it comes in contact. The actual flames of a fire may extend only a few feet from the point of origin, but the hot smoke and invisible heat waves may easily travel through an incombustible stairway or hallway for 50 or 100 feet, and then ignite the whole surface of a wooden door in an instant. At the same time, glass door panels and fan lights will collapse by rapid expansion, and the intense heat entering rooms will cause them to burst into flames.

An excellent example of this occurred two years ago in the Hotel Lenox, in Boston. The fire started in a bedroom on the third floor. The hot air passed through an open door and up through a stairway and elevator shaft of incombustible construction to the sixth story, and then traveled along the hallway until it found some doors left open by fleeing occupants. These rooms were burned out. At the same time it jumped from the sixth to the eleventh story and burned out a few rooms in the same manner. The intervening stories were very little injured, except in some cases there was surface burning of a small amount of wood trim in the hallways. This action of heated air is common, but a fire is not often extinguished in time to preserve the evidence so well.

For the reasons here explained, it is evident that hallways in all public buildings, as well as in office buildings and others, should be protected at reasonable intervals by fire-resistive partitions and fire doors, irrespective of whether there is any combustible material in the hallways or not.

It is also self-evident that all stairways and elevator shafts should be completely inclosed with fire-resistive materials, and that glass doors or windows opening into such inclosures from the interior should be prohibited.

Another class of fire communicating channels in nearly all public buildings, and in many buildings of other classes, which, though usually out of sight, are nevertheless dangerous, are the ventilating ducts, also warm-air ducts, if that system of heating be employed. These metal ducts cross the basement ceiling to risers, which distribute throughout the building. The basement is usually the storeroom for boxes, old furniture, surplus publications and other highly combustible material. A fire occurring in the basement is likely to escape discovery until it has gained considerable headway. If it becomes serious, the sheet metal ventilating and warm-air ducts will get redhot, and although no flame enters them, the air within is superheated and distributed through the building, igniting everything combustible it touches. Such pipes and ducts frequently have small wire supports, which, when they get hot, lose strength and allow parts of the pipe to drop, thus providing the fire with open passage to all parts of the building.

It is surprising how small an opening through a wall or floor will suffice as a gateway for superheated air to start a fire on the opposite side.

Some of you may remember a report prepared by the speaker and published by the National Board of Fire Underwriters, about two years ago, describing a fire in a reinforced concrete building at Far Rockaway, L. I. I discovered that the fire entered the concrete building from an adjoining wooden building through a 4-inch hole in the concrete party wall, and then passed to two stories above by way of a 2-inch hole in each concrete floor, where a heater pipe had been removed. At another place the hot air went through a 1-inch hole in the party wall and set fire to a woodpile.

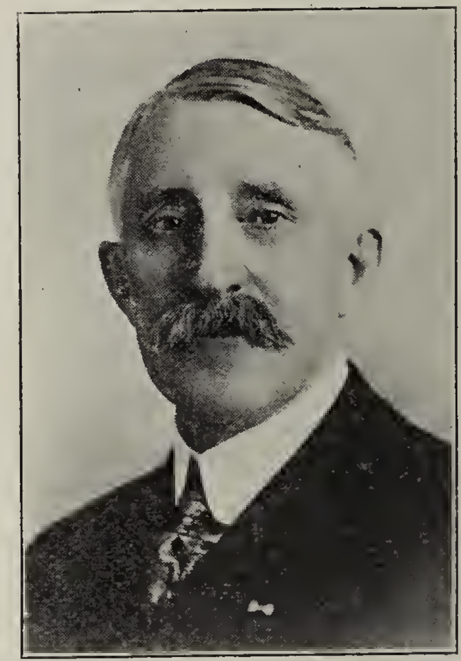
We have abundant proof that many fires are transmitted through fire-resistive floors and walls by superheated air flowing through the small openings around pipes. This occurs even though the opening does not exceed ¼ inch.

The ordinary method of closing such openings by thin metal collars or plates is inadequate. All plumbing pipes should be tightly sealed with cement mortar where they pass through floors or walls, and the openings necessary around steam and hot water pipes should be packed with loose incombustible material.

The criticism offered on public buildings applies equally to all other classes of buildings. First class office buildings are probably as safely constructed as any buildings having multiple occupancy, but they are seldom fully guarded against spread of fire.

The stairways and elevators are usually well protected, but frequently there are floor areas of several thousand square feet without a single partition which would restrict the spread of fire five minutes. They may have numerous brick, tile or gypsum partitions with glass panels in the upper portion. They have a decorative effect and assist light distribution, but are worthless as fire barriers. The glass breaks and falls with the first hot blast, and all the rooms burn as a unit.

This was a common method of construction in the great Equitable Building which burned a few years ago in New York. It was classed by its owners and the general public as a "thoroughly fireproof building." It burned with terrific fury in spite of the combined fire fighting forces of New York and Brooklyn, than which no better exists. The reason was that the building was honeycombed with defects such as described.



Ira H. Woolson, New York, N. Y.

Ordinary windows opening into air or light shafts constitute another defect producing rapid spread of fire. Flames enter the shaft, and are forced upward by natural draft conditions, while at the same time heat accumulates in the shaft; consequently, such windows frequently transmit a fire from story to story. Only wired glass windows in metal frames should be used in such locations.

However, the number of massive office buildings, apartments, hotels and similar high grade buildings, subject to fire from defective construction, is small as compared with the great mass of brick walled buildings. The burning of one of these large structures is spectacular, and attracts attention because of its magnitude, but the destruction of a small brick building reflects just as severely upon the reputation of brick for fire-resistive construction as the loss of the large one.

Millions of brick are used each year in buildings of simple architecture and modest cost. They are undoubtedly less liable to complete destruction by fire than wooden buildings, but are by no means as fire-resistive as they should be, nor are they as safe as the public is taught to believe.

If chimneys in such buildings were properly built and isolated from all interior woodwork; if furred walls were completely firestopped at each floor and ceiling, and the roof fire-stopped at the line of the eaves; if stairways were enclosed wherever possible; if roofing were of incombustible material; if cellars were properly cut off from stories above by incombustible ceilings, and heating apparatus safely installed, such buildings would be immeasurably safer than they are now.

The Building Materials Division of the War Industries Board, of which the speaker is a member, is preparing to publish a complete record of its work in the conservation of building materials due to war emergency demands. It includes a section devoted to Fire Prevention and Fire Protection which, though primarily intended to safeguard war building projects is, nevertheless, in many respects, just as applicable to all medium grade buildings. It comprises specifications and construction details fully illustrated, covering all the principle weak points in non-fireproof construction.

Quite apart from my own association with the work, it was prepared by a group of well qualified experts, and, in my opinion, is a very valuable contribution to the subject. It will have the endorsement of various Governmental Departments, and might be advantageously taken as the basis of such propaganda as I am proposing to you. Similar material can also be obtained from the National Board of Fire Underwriters.

The additional cost of such precautions would be small, and I am positive that if ordinary joisted brick buildings were erected with due heed to them, the security of such buildings against complete destruction by fire would soon become so apparent in fire loss records as to give ordinary brick construction the reputation for fire-resistance which it fully deserves, but does not now possess.

What have brickmakers done individually, or as organizations, to thus safeguard buildings manufactured from their product? Have they ever made any effort in this direction? I have gone over considerable literature distributed by them, and can find scarcely a reference to specifications of this character. You extol the virtues of brick collectively and specifically as to its permanence and beauty; you prescribe the character of joints, the quality of mortar that should be used, and proclaim the fire-resistance of brick itself, but rarely, I might say never, a word suggesting methods of construction which would prevent a brick building being completely destroyed by a fire occurring inside or out. In other words, you have failed to insist that proper "construction straws" be used which would develop the full value of your material in the production of an efficient fire-resistive structure. In direct proportion to your failure to take such action, you have been "asleep at the switch", and blind to your own best interests.

H. H. Stafford, Atlanta, Ga.

You have been content to secure a customer for your product, and have given little thought as to how he uses it. But you may say, that is not our function; we cannot control design, or compel an owner or builder to incur the expense of special structural changes. It is granted, you cannot command either of these things, but proper building construction is largely a matter of education, and if you, as brick manufacturers, were to continually insist upon the use of such standard construction features in buildings as would make them truly fire-resistive, you would not only advertise the possibility of really safe construction with your material, but at the same time would be inaugurating a propaganda for conservation of manufactured resources having the greatest National importance.

In my opinion, one of the most valuable things you could do for the future prosperity of your business, and the economic well being of your country, would be to start a vigorous campaign for fire safe brick buildings. Most people would build correctly if they fully understood the importance accruing to themselves by so doing.

You should take action of this kind to protect your own reputation as manufacturers of a building material which does not, of itself, burn. Every time a brick building is wholly destroyed by fire, it casts an undeserved slur upon your product, and the public begins to wonder whether, in the last analysis, a brick building is safer than a wooden one.

I regret to say that the architects are also largely responsible for the existing deplorable lack of fire-resistive building construction. A few of them are fully alive to the situation, and are doing splendid reformation work, but the rank and file are sadly in need of education.. You could undoubtedly exercise a beneficial influence in this direction.

The manufacturers of sprinkler heads insist that every sprinkler equipment shall be erected under their direction to avoid, as far as possible, any failure of the device to perform its function due to improper installation. Many other manufacturers are jealous of their products' reputation, and where not practical to personally supervise the use, they issue detailed specifications to control same.

Fifty years ago, when the National Board of Fire Underwriters was organized, some of its founders were of the opinion that it was not their province to tell the public how to build. Their motto was in effect." "Let the public build as it likes and we will rate according to the risk." That theory was fundamentally wrong. It was discreditable to the business, and has been condemned these many years. Today, the National Board of Fire Underwriters is devoting a large part of its great activity in an effort to educate the public how to build safely, and to properly protect individual buildings and cities after they have been erected.

It maintains a staff of engineers devoted to this work, and publishes much literature dealing with fire prevention and fire protection. It issues a Recommended Building Code detailing safe building requirements which it distributes gratis to those interested in the subject. It stands ready at all times, free of charge, to advise upon building ordinances or methods of construction which will aid in lessening our great national disgrace, known as the "annual fire loss." The task is a huge one, and can only be accomplished by cooperative efforts of all organizations interested in our civic and national welfare.

Other examples justifying the action that I am urging are unnecessary; there is abundant precedent for your organization to adopt a definite policy to use its influence collectively and individually in securing the use of such "construction straws" in brick buildings as will make the structures as a whole have a cohesive fire-resistance somewhat comparable with that of their walls. If I shall have been fortunate enough to have contributed something toward this end, I shall feel abundantly repaid for accepting this opportunity to come and talk to you. (Applause.)

General Discussion.

President Robb: Mr. H. H. Stafford, of Augusta, Ga., is to lead in the discussion of this paper.

H. H. Stafford: Mr. President and gentlemen: We all recognize the great importance of this question, and I am sure we are very grateful to Mr. Woolson and the Board of Fire Underwriters for this fine discourse. Think of it, more money is burned up than is expended in construction. I spoke at our last annual convention as to the large annual loss and of the adoption of new building code which has held our fire losses down the past year to the smallest it has ever been, so while this is a national question, it is also a very local question. It seems to me that every member of this association should render service to his home town and home community, and to the Nation, by using his influence at home and see that such regulations are put on the statute books as to eliminate as far as possible this fire waste. In this way, all of us can have part in reducing the National Fire waste which is such a serious question. I hope very much the gentlemen will bear this in mind and give it the attention it deserves.

President Robb: This would be a good thing also for the Committee on Efficient Engineering to consider. This is an excellent paper for all of us to consider.

John W. Sibley: Before we take up the next paper, I move a vote of thanks be extended to Professor Woolson and the Board of Fire Underwriters, for this paper.

W. K. Hammond: I second the motion.

Carried.

President Robb: The next paper on the program is the "Evolution of Shipping," by John F. Lent, of Pittsburgh. Mr. Lent has had a great deal of experience on this question and I am sure will give us something interesting.

John F. Lent: It is rather fortunate that I have the opportunity to speak on this question, in the greatest transportation center of this country. It was a source of much of the congestion of the railroads that was experienced within the last few years. The subject is so important that we cannot delve down into it very deep in the short period I have to address you, but I want to bring home to you a few things which you can think about after you go home.

EVOLUTION OF OUR TRANSPORTATION.

JOHN F. LENT, PITTSBURGH, PA.

Mr. President and Gentlemen of the Convention:

With the awakening of the public mind to the essentials of transportation as governing the economic and commercial life of the country, as well as controlling the National Defense, we find this subject at last given the position of importance that should attach to the greatest industry in America.

Just why the business interests displayed an apathy to the development and practices of the transportation channels until now is not conceivable to the traffic student; yet the chaos and the dwarfed development of transportation in this country convicts America on the charge of negligence. Only in recent years has the public shown an activity to dirct the destiny of these carriers, and the operations of the railroads, as a war measure, presented one of the most drastic economic revolutions in our country.

To get the proper impression of the evolution of transportation in America and the issues that have arisen to bring about this present control by the Government, it is interesting to briefly review the early history of shipping.

Water afforded the only means of transportation in the early period, later as population grew, the hauling by animal and wagon was depended upon, but as the fertile regions west of the Allegheny mountains became occupied in the early part of the 19th century, trade between that territory and the seaboard increased to such importance as to tax the trains of loaded wagons, and while the government lent assistance to the construction of roads over the mountains, commerce rapidly outgrew this slow means of handling, and better facilities became necessary. Congress had early provided aids to water navigation in harbors, along the coasts and large rivers, but there was opposition to the improvements of the water-ways themselves by the government on the grounds that these were under the jurisdiction of the States. Later the new states of the West, and their influence in Congress, led to a new national policy which was concurred in by the Supreme Court, which asserted the authority of Congress under the commerce clause of the Constitution to control navigation over all waters where Interstate and Foreign Commerce were concerned, and during the last fifty years, governmental activities for improvements have lead in many directions on our water-ways.

The rivers gave large assistance in this early period, but afforded no relief for the crossing of the mountain range, and the canal, which for years had been adopted in Europe, became a factor for moving rapidly increasing commerce. As early as 1796 construction was undertaken on the Erie canal by private enterprise, later financed and the canal completed by the State of New York. The recent reconstruction of this great canal is one of the largest engineering achievements on the continent. So important was this project as a war utility, that the government assumed control over it. Within fifteen years after the opening of the Erie canal, the Atlantic Coast had been connected with the head waters of the Ohio by canal, and about 5,000 miles of canal had been constructed in this country at a cost of $150,000,000, when the modern transportation, **The Railroad**, attracted attention.

As is generally known, the first railroad with steam power was begun in Baltimore in 1828, the first 25 miles opened for business two years later.

"Railroads are public highways"—so declared by the various State Constitutions under which their charters have been granted and the Supreme Court has so held from the beginning of railroad history. They are in the nature of things to be used in a particular manner and are to be devoted to the public use. Under the terms and conditions prescribed by law, the operation of railroads as public highways is purely a function of government, the exercise of which has been delegated by the various states to the corporations, which they have created for that particular purpose. Public highways are matters purely of public concern, and private interests can only exist as such, as conferred by legislature enactments. All the functions, which the railroad corporations exercise under their charters, are delegated governmental functions. Under the charter grant, the capital is entitled to receive a fair return for its use in this public service, and this return must be sufficient first to provide for the public a proper service and at the same time be an nducement to attract capital . The public interest is entitled to protection against the imposition of charges in excess of the reasonable rates, likewise to be given service under proper management of the railroads.

As an encouragement to railroad construction, various state legislatures, in the early history of railroading, modified the limitations of charter rights respecting the authority to issue stocks and bonds for a consideration less than par, and in many instances these charter privileges permitted the directors to issue securities for any price they saw fit to accept, and when so issued they would have the same validity as though issued at par. The legislatures granting the franchise of these corporations made legal what would have been otherwise ficticious securities. This resulted in watered securities which brought forth such protest that in 1870 the State of Illinois in its constitution embodied the following:

"No railroad corporation shall issue its stock or bonds except for money, labor or property actually received and applied for the purpose for which such corporations were created. Any stock dividends or any ficticious increase of capital stock or indebtedness shall be void."

Other states followed in like manner as the people had been imposed upon. The full extent of private interest which the legislatures have granted to the carriers in public highways, under such limitations is measured by its investment devoted to the public service, and any regulation of the use of the highways which preserves to the carrier the integrity of the investment, and a fair return upon the investment, gives the corporation all the rights which are guaranteed under the State Constitutions.

The railroads so conducted their affairs as to eliminate the barge from canals and steam boats from rivers; both channels having experienced periods of great activity, and their decadence, charged to the competitive influence imposed by the rail carriers which with the quicker dispatch and low rates, made this new rival in the transportation field a giant of power.

Our rivers carry less freight than they did half a century ago. Canals have been bought up and put out of business. The enormous independent fleets that operated a generation ago on the Great Lakes have disappeared and the railroads have appropriated the right to move all classes of freight, and our inland water channels do not longer attract for the service for which they were naturally intended. As we look back over this policy which curtailed rather than enlarged the means of transportation, we observe the same degree of indifference in the construction and maintenance of our merchant marine. Who should be charged with the lack of foresight and sacrifice of opportunity? It requires no statistician or philosopher to estimate the economy that would have come through the natural and healthy development of all channels of transportation; both rail and water.

A railroad corporation is a part of the civil government as much as the city corporation and in this, public endeavor should have the charges fair and reasonable and the discriminations between patrons absolutely prevented. Progress of our shipping systems cannot be expected as long as the railroad capitalists are oppressed by undue legislation where earnings are unreasonably depressed, while simultaneously paying increased cost for labor and material. It is obvious this condition cannot be tolerated by a progressive nation and it comes to a public policy, rather than a sentimental flurry to revolutionize the machinery so that where private ownership exists, it may not bear losses attendant upon proper development of these arteries of commerce. To doubt that our railroad problem will finally be settled equitably for all interests in such way as to further the public welfare is to question the good faith and good sense of American people.

Jonh F. Lent, Pittsburgh, Pa.

At the outbreak of the Civil War, the General Superintendent of the Erie Railroad was made Military Director of the U. S. Railroads, and his work was watched by all Europe. Germany had definite schemes for the military use of its railroads as early as 1833, but in 1864, after observing what had been done in America, Germany saw possibilities of railroads in war and devised means for the development of them by the Government. Prince Bismarck effected the co-ordination of railroads for economic considerations, as well as national defense. So successful was this undertaking in Germany that it attracted the attention of Great Britain, who provided a law as early as 1871 that would place the railroads of Great Britain under governmental control when war was declared. Under this plan the staff of each railroad remained undisturbed and an executive committee of experienced managers acted as the Operating Committee, and notwithstanding labor had been diverted from the railroad forces and a greatly increased traffic was thrust upon them, the economic advantage and the large achievement has justified this co-ordination. The expeditious moving of troops, ambulance and freight trains during a period when sea transportation was greatly curtailed, presented problems that could not have been surmounted without government direction. No railroad strikes nor other influences contrary to the public interest were experienced and general good feeling prevailed between employer, employees and the public, and the latter notwithstanding increased freight and passenger rates.

In France large economics are credited and great public convenience has resulted through the unification and central control of rail and water lines and the principle of diverting to the water channels the low grade heavy bulk freight, leaving the rail lines to carry the high grade freights for prompt dispatch, has permitted of a low average cost per ton mile, lessening opportunities for congestion and keeping all channels in a productive and healthy state. In America this principle has been ignored and a great wastage has come through the suppression of water transportation facilities since freight can be moved at approximately one-seventh of the cost by this means as against rail service.

Pittsburgh, the greatest manufacturing center, witnessed the decadence of all these means of transportation, and, but for its natural resources and enterprise of its citizenship, it could not have withstood the hardships that come from a breaking down of transportation mediums.

In recognizing the fact that railroad managers have not gone as far as they might have in improving railroad service and providing reasonable rates, we must bear in mind that they have been persuaded by the same ideal as that of all other American business of operating to the interest of the owner and wishing to retain whatever strategic value over traffic each road could command. Then, too, our legislatures have burdened the statute books with laws designed for the protection of the public, which have probably been as much obstruction to the development of adequate railway service as the unfortunate policy of selfishness pursued by railway managers. The dual system of railway regulation of State and Federal authority is without a doubt cumbersome and wasteful and is a prolific source of conflict and misunderstanding. State railroad commissions are not a conspicuous success, being made up largely of legal rather than students in economic and traffic matters. Ill-considered and unwise laws for railroad regulations have been passed with great frequency and powers vested in State Commissions have been used with injurious effect on the carriers, or have remained unused to the detriment of the general public.

The State by virtue of her right of eminent domain may compel justice in the interest of the public by limiting corporate privilege, because the Commonwealth reserves the proprietary rights of all the people to the use of the highways.

There have been three distinct stages of control exercised by the people of the United States respecting the operation of our privately owned railroads.

First: When the Act to Regulate Commissions was enacted in 1887, the Interstate Commerce Commission was created and the charges for transportation were required to be publicly displayed in tariffs, when pooling of freight was prohibited and numerous other practices changed.

Second: When in June 1906, the Act was amended so as to give governmental authority for the determination of rates and practices which legislation prevented the granting rebates, a condition ruinous to the railroads as it was to the public interests, and gave the Interstate Commerce Commission authority to prescribe maximum rates for service.

Third: This stage started with the proclamation of the President under which a Director General, as a war measure, assumed control of the railroads for the government and with the action of Congress, such control to continue not exceeding twenty-one months after the conclusion of peace terms.

Wm. Burgess, Toronto, Ont., Canada.

History will record the fourth stage through legislation now in process of construction in Congress, which will reflect the public desire for either government ownership or private ownership under a system of control, involving many new features.

All this legislation in America seems to emphasize that the railroads cannot be conducted like private enterprises, merely for the directors and stockholders, that they are corporations appointed to do a public duty and they are, therefore, servants of the State. This principle has been upheld by the Supreme Court, not only in the United States, but also by individual states from which their charters issue. This attitude, however, has not been assumed in common practice, either by the railroads, themselves, or the public, and monopolies have developed with many railroad corporations which have militated against handling of the public trust. Industries at times have been dwarfed and irreparable loss occasioned.

With respect to Interstate Commerce, we have had the direction of it under the Commerce Commission for 30 years, during this period our railroads have prospered. The lines handling the bulk of traffic have been able to pay liberal dividends, and the net revenue of the American Railways, as a whole during the three years prior to our entrance in the war, has exceeded the net revenues of any other like period.

The Act to Regulate Commerce and amendments thereto were designed and have proven effective in large degree for the protection of the public against ambitious and avaricious railroad managements, but in the absence of a scientific principle, upon which rates for transportaton shall be computed, the Act has not brought relief from the chaos of rate structure, and the public have been forced to either bear unreasonable and discriminatory charges, or with much expense file complaints with the Commission to obtain relief. These complaints have been innumerable and so clogged the machinery as to greatly delay decision. Under this pressure of unrest, the Commission was obliged to delegate examiners of more or less proficiency to take testimony, and the whole process, while well intended as a public convenience, has fallen short in securing stability and a reasonable and expeditious rate fabric for our people.

The law required the shipper to be hurt before the remedy can be applied. The public are only interested in service and rates and will not be content unless these are fair. The service necessary can only be accorded by unification of the facilities, both rail and water, which are available. Laws which prevent the pooling of cars must be repealed. The interchange of traffic with water lines must be secured and every facility that will expedite movement, rather than retard it, must be provided. Rates must be compensatory, but low enough and staple enough as to remove the unjust tax and dismiss the mystery that has surrounded the rate fabric.

The Interstate Commerce Commission exercises legislative, judicial and administrative functions, it debates like a legislative body and delays like a judicial tribunal. Rate making between the private owner of the railroad and the shipper is unquestionably a legislative act, and Sections 2 and 3 of the Act to Regulate Commerce which prohibits discriminations and preferences, are predicted upon sustaining the shipper's right to a reasonable rate, to reparation for damage and to protection against an increased rate, fair, charge or classification, after approval has been secured from the Commission. Of course, in the war emergency the shippers' rights are subordinate to the needs of the government, and the discretionary power that the President exercises can and does take precedence over all other regulative authority.

Railroad facilities employed in intrastate transportation cannot be separated from the facilities employed in interstate transportation. The burden of maintaining one must be the same as the burden of maintaining the other. There have been discussions as to whether a schedule of rates reveals a certain per cent. upon an estimate of the cost to reproduce property, and this concerns merely the protection of the private right of the owners of the property. It does not help protect the public in its right to an adequate service. The state that is satisfied with a low standard of service profits at the expense of all those who ship in the Interstate Commerce. The national authority may deem it necessary that railroads should increase their trackage, enlarge their terminals and provide additional equipment. The state authorities may regard the present facilities as adequate. The standard of rates determined by the Federal authorities may be reasonable from the point of view of the nation, whereas, the standard determined by the State authorities may be regarded reasonable from the point of view of the State.

The most difficult feature for adjustment is the rate structure which is performed under greater cost in one section of the country than in others, yet there can be no justification for the discrepancies at present found in the rates on many commodities and between many different communities. Simplification must be employed in the tariffs displaying the rates, and the rates should be based upon something real rather than on sentimental reasons, or unsound principles.

A freight car carried a given distance in its ordinary train movement establishes for itself a certain cost; the using of the terminals at both ends of the line and the over-head expense of operation should be determinable. It is unfair that the shipper of brick, who loads and whose customer unloads, should make up the deficit of sub-normal charges for handling other commodities, nor that for similar service, one shipper of brick should be placed at a disadvantage in the freight rate with that of another. The mile unit of haul must be the measure for comparison, after due consideration is given to terminal and over-head expenses.

No other country in the world has ever had a railroad system as extensive and as complicated, nor with the passenger service as comfortable. All will admit that there are many evils connected with it; there was discrimination in rates and stock gambling on large scale. Discrimination in service, which in effect is as malicious as rebating. The apathy of the public to the direction of this great enterprse and its control is responsible for the present chaos, and the uncertain policy which has permitted abuse of our commerce. The government will always exercise its lawful power to appropriate for its use in times of war any private utility, but it is a matter of public concern that justice be administered in times of peace to those concerned. The public demand for efficient service at lowest cost must give consideration to the present holders of railroad securities, of which there are seventy-seven billion dollars issued, because this investment must not be impaired, but sustained at a rate of interest that will perpetuate it and encourage other capital for further railroad construction. It must also provide for the wage earner, of which there are approximately two million, a wage that will properly compensate and satisfy to the point of retaining the experienced in their present line of work. It must also provide for the shipper's interest, so that his products may reach all markets at rates and with such assurance of deliveries as will meet the competition of shippers in foreign countries, and at the same time enable him to compete at home without prejudice.

On the efficiency of the transportation machine depends in great measure the future of the nation. Our competition will not alone be that of Domestic Commerce, as we produce much more than we consume, the surplus must seek competitive markets, our transportation system, both on land and water, must function at the highest point of efficiency and at the lowest possible cost, if we are to obtain our fair share of the world's trade; at the same time keeping our people employed, prosperous and happy. The railroads came into being under the stimulus of competition, which prompted enterprise and keen rivalry among the various lines, but this competitive interest was jealously guarded and fostered by state laws, as well as the Federal law. Out of the competition grew rate wars, pooling, mergers and preferential treatment of shippers. The Act to Regulate Commerce, formed in peace times, was for the protection of the shipper against the unjust treatment by the carrier, and not for changed conditions of commerce in times of war. The fullest utility of the carriers in time of war is acquired when operated under a single control, but in time of peace, we should sustain the business structures that have developed under competitive influences and enterprise, so long as the conduct of these enterprises is in the interest of providing an efficient service at rates that will pay a fair return on money invested.

The unification of terminals and the possible utilization of motive power could be accomplished by harnessing our great rivers, which would save millions of dollars in transportation cost, and the substitution of water transportation for low grade and bulk commodities would add annually immense savings. A simplified classification and rate structure based upon a mileage schedule or some scientific principle would produce economies in accounting and clerical operation, because today there are thousands of different rates. Rates are changing daily and require endless book-keeping and confusion for both railroads and shippers. Any unnecessary expenses to the carriers must be reflected in the rates charged the shipper and only in recent years has the subject of possible economies been receiving public attention.

As is generally known in this present period of reconstruction, Congress is devising means whereby the great business of transportation may be conducted under a national policy and these considerations are:

First—Our railroad transportation.
Second—Our merchant marine.
Third—Our internal waterways.
Fourth—Our road highways for motor trucks.

These have not been developed to the point of efficiency commensurate with our national commerce; nor with the economic problems which naturally follow the world war. Serious consideration is already given to that other—a newer type of transportation—the aeroplane. No one can prophesy its possibilities, yet its potentialties have already been proven.

Commodities have practically no value until transported to the required markets, hence transportation in all varied forms, developed to its highest efficiency and lowest cost, commends the consideration of all thinking people from a commercial standpoint, at the same time being indispensable in times of war for the proper defense of the nation. Our progress to these ends has been dwarfed immeasurably by the localizing and piece meal legislation. What is needed is a co-ordinating and stabilizing plan, with facilities available and a creation of such additions under proper jurisdiction as will further the public interest, rather than the private. Less complication in setting forth the charges that are proper. Rates constructed without a scientific principle has been the prolific source of loss to industry.

With respect to the future of our railroad situation, the Director General, who has been in control thus far since January 1, 1918, has a comprehensive plan for the continuance of the private ownership under government control as at present organized, which he advocates to continue for 5 years to make further test of the possibilities of the reforms instituted, these reforms calling for the unification of terminals, the pooling of equipment, a consolidation of offices, the standardization of equipment, the co-ordinating with water routes where feasible. The plan has few advocates among the business interests, and while the test has been made under abnormal conditions, nevertheless it has been conducted with so much greater cost with a lowering of morale, and a substitution of the inexperienced for the experienced official, that the experiment has been expensive and the opportunity for political preferment will justify discarding this proposal.

For the year 1918 under government control, the government's loss operating the railroad cannot be stated exactly, but promises to show one million dollars, and this notwithstanding receipts were nearly 20 per cent. greater. It took 80 per cent. of the operating revenues to pay operating expenses or 10 per cent. more as compared with 1917. Of course, increased wages accounted for this large disparity, and, while advocates of the five year extension plan claim a parity of revenues with expenditures would be maintained by the government so that the railroads might be operated at cost for the benefit of the people, the experiment thus far gives no presumption that freight rates would be lowered, and we can generally accept the theory, I think, that such continuance would result in government ownership. The situation would be prolific for promoting political ambitions and expose the government to serious financial burdens. We may well be apprehensive of the results that would follow, when the great business of the country would go into the hands of a political party. Of course, railroad employees, who have enjoyed increases in wages in the past year, see some merit in government operation or ownership, but the general public, which have been called upon to pay from 25 to 100 per cent. increase in freight and passenger rates, and being appreciative of the reduced efficiency and enterprise that has been apparent and the further increases that will burden the government to meet the fixed charges, calls for caution at a time when the experienced and the theorist are going beyond sound business principles. A private interest performing a public duty and under strict regulation for the limitation of return and the performance of efficient work retains those qualities of iniative and enterprise which makes for a healthy institution and its benefits can be enjoyed by the public at less cost than would be possible otherwise.

The greatly delayed American merchant marine received its impetus when entrance into war compelled ship consideration. It is claimed that we now have 8 million tonnage available, hence the big question here finds a parallel in our rail problems. Shall the government continue to own and operate the vessels or shall they be sold or chartered to private ownership, which shall operate to the best interests of all? The competition on the high seas for world trade is made severe for American vessels because of the low oprating cost and subsidies granted by other governments. Our government must decide upon a policy that will make it unnecessary for the American shipper to employ foreign bottoms, and this must be accomplished so that the freight cost will permit of our reaching markets even though a subsidy is provided by the government in the case of private ownership or charter. The government could continue to own and operate our merchant marine, establish competitive rates to insure American products getting to the foreign markets and at the same time permit the cost of operation necessitated by the high scale of wages, and charge up the deficit to the public treasury. Here again, however, we must preserve the value of private ownership and the enterprise and rivalry it provokes, securing greater efficiency at less cost. Subsidies are unpopular, but we must face the alternative of providing this method or see our American bottoms driven from the seas. The incentive of the private owner to successfully operate his property under regulations of the government insures economy and efficiency in operation.

Ever since the armistice was signed, the policy of British authorities has been to reduce rates as rapidly as possible, with the result that they are much lower than a month ago, and all lines of British business are feeling it. Suppose that goods cost exactly the same in America and England, the freight difference is enough to turn the competitive schedule, for the foreign buyer is interested only in what his purchases cost him when laid down at his own port, whether or not it causes more to run American ships than British, we won't have any business to operate unless we get busy right now. All the world is looking to the future connections with the producing lands, and we can afford to fight out a rate war for shipping with England today better than a few years or months hence. What the American exporter needs now is an equalization that will require England to advance her rates or to lower our own, in order that our goods may be sold abroad. Even labor costs do not justify the high rates that at present are maintained by the war. It cost us $3.60 a ton to ship Buenos Aires, and after a few months it got up to $10.00, and now the rates are $35.00. This has been paid simply in order that some particular goods can be placed on the markets. Operating costs have not gone up in ratio and our merchant marine policy must be in keeping with the lowering of English rates. American commerce will suffer from a further continuance of artificial and abnormal rates for shipping space.

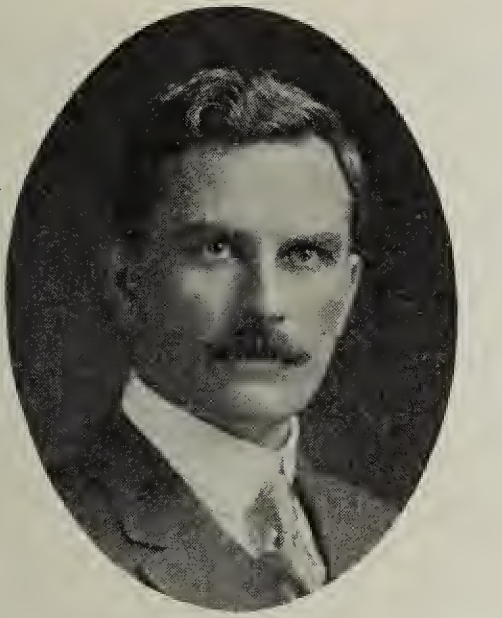
S. B. Dobbs, Philadelphia, Pa.

The one underlying factor which affects all development of natural resources, and which is at the bottom of all business, the foundation of credit, the pedestal of commerce and the rock on which prosperity stands is—TRANSPORTATION. The country soon after becoming a nation connected the East with the West and the North with the South by railroads. It was the railroad which made the southern reconstruction possible and which, sixty years after the war that left the South prostrate, has developed the Southland to its present prosperity. The United States has run the gamut of encouraging, fostering, helping, neglecting and hindering the railroads, and now for a time are all but owning them; but far-seeing men are beginning to believe that the future of transportation does not rest entirely with the roads of steel, but with the roads of water and roads of stone. The past decade has developed a new factor, which has as yet received scant attention from the government—that factor is the motor truck, and it has taken the world war to make Uncle Sam recognize its need.

Years ago England and France solved the highway problem by the creation of national road systems; these were built by the nation and maintained by the nation for the use of its people. It was composed of a comprehensive system of highways running through important centers; to these main roads smaller political units built feeders or what we might call state roads and county roads, and these connected up with the national systems. For the most part they possess solid foundations and have been kept in repair. The motor truck was as vital behind the lines in France as the system of railroads. There is to be a great revolution in our road building methods in order that the motor truck with its heavy load may be moved about, serving farmers and the manufacturing interests alike, and delivering the short haul traffic. The national highway system, of which we are in such great need, will cost millions, yet for national transportation, we cannot longer delay the start, and the present bill known as Senate Bill 8055, increasing the present unexpended appropriation of about $60,000,000 for road purposes and the addition of $125,000,000 for expenditures to June 1920, and $100,000,000 a year thereafter for four years, contemplates a program that will transfer from Europe to the Homeland the facilities that were so effectively used by our Engineering Corps abroad, opening up territory as an aid to agriculture, increasing the production and marketing of farm products. With these facilities road construction can be accomplished in the best possible manner for the nation, and it is gratifying to find Congress pursuing our road building program and thus assisting in cutting down the high cost of food by cutting the greatest item—transportation.

The road problem of this country from any angle—commercially, economically, socially, militarily, politically or agriculturally cannot be solved by the states. It is not a local issue. When a town builds a road, it places it where the town wants it, not where the next town is best served. When a county builds a road, it runs from one end of the county seat without reference to the adjoining county's requirements. When the state builds a road, it connects its important cities without much thought for the adjacent state, but when the United States builds roads as a nation, it will solve the difficulties and build a system which considers the country as a whole.

In conclusion whatever legislation is to be enacted that will protect the American people, and at the same time be instrumental not only preserving but developing our transportation channels must reflect the best thought of the people. Business men, as well as statesmen may well review the past and seriously contemplate the future, arriving at conclusions that will be instrumental in advancing rather than retarding our progress. Such legislation as will give the shipping public a minimum charge for service, based on the cost with proper return to capital and rates and service stabilized, with only such modifications as will be necessary to meet unusual conditions in various sections of the country, are the essentials.



H. C. Kleymeyer, Evansville, Ind.

I believe that by amending the Interstate Commerce Act, and permit the pooling of cars and freedom of exchange at terminals between various roads, with a provision that will announce a scientific basis for rate making to be followed by the Commission on Interstate traffic, as well as state movement, with an enlargement of the Commission for the more prompt disposition of matters requiring their attention, will go far to correcting the chaos, the inconvenience, and the loss to which our people have been subjected, through the breaking down not only of the facilities of transportation, but the morale as well.

The legislation should provide a National Railway Administration Board similar to our Federal Reserve Board that has jurisdiction over banking enterprises. This board might be a reorganized and enlarged Interstate Commerce Commission. The wide diversity of interests naturally suggests regional boards so that localized conditions and prompt service to the public might be made secure. This regional division need not be geographical, but rather industrial to follow the lines of traffic which have already been built up.

To make this entire scheme workable in a specific way the transportation companies should be incorporated under the authority of the nation, because so large a percentage of the entire traffic is Interstate, and the remainder should give way to the national policy. While there will be state objections, a way must be found to reconcile the local or state interests. The railway business has long since become a national problem. The owners of transporting property must relinquish the claims that the roads are private property to be run for the profit of the owner. Labor must relinquish the claim that roads are run chiefly to employ men at good wages; these interests must not be antagonistic but co-operative. The public who is the third party must not only be considered, but in the end is the chief factor in the determination of the policy, and through representation in congress must resume the rights to determine how these properties shall be operated and what they shall earn. A national charter will place the limitations and provide a proper regulation, at the same time, preserve individual initiative which spells—Progress.

Government ownership of railroads is consistent with an autocratic form of government, but under our form of government such ownership would be autocratic and socialistic. We must respect private ownership with its economic efficiency under a rigid regulation by the Government that will prohibit abuse, encourage progress, and meet the needs of a healthy democracy. While the United States represents but 6% of the world's population, and 7% of the world's land, we provide 70% of the world's copper; 66% of the oil; 75% of the corn; 60% of the cotton; 33% of the silver and 52% of the coal; 40% of the iron and steel; 20% of the gold; 85% of the automobiles; 25% of the wheat and operate 40% of the world's railroads. No other country affords a satisfactory comparison from which to draw our transportation policy, and we must provide constructive and rational legislation in order that every person claiming protection under our American Flag may be served by our transportation facilities to the best interests of all.

The defense of the flag means—co-operation, obedience, recognition of authority, preservation of law, and most of all it means economy; it means stopping waste, and the concentration of energy; it means that the United States is first paramount, supreme and everything else must be subordinated. (Applause).

General Discussion.

President Robb: Mr. J. G. Barbour, of Canton, Ohio, a man who is well versed on the freight question, was to have opened the discussion on this paper, but Mr. Barbour is not here and the hour is so late, we will probably have to pass it.

Mr. W. K. Hammond: Mr. President, I move a rising vote of thanks to Mr. Lent for his excellent paper.

Mr. W. D. Richardson: Second the motion.

Carried.

President Robb: Before we adjourn for lunch I want to announce the Committee on Resolutions.

Committee on Resolutions.

Marion W. Blair, West Virginia.
Charles F. Clippert, Michigan.
John H. Miller, District of Columbia.
Wm. Burgess, Toronto, Ont. Can.
P. E. Monroe, Rhode Island.
Hubert Somers, New Jersey.
J. C. Taylor, Kentucky.
R. C. Burton, Ohio.
B. W. Ballou, Kansas.
C. J. Weber, Illinois.
G. M. Krick, Indiana.
H. H. Oberly, Delaware.

President Robb: We now stand adjourned, gentlemen, to meet at the Chamber of Commerce at 2:30.

THIRD SESSION.

Chamber of Commerce Auditorium.

Thursday Afternoon, 2:30, Feb. 6, 1919.

President Robb: Gentlemen, if you will come to order now we will take up the first paper on the program, "Plant Management," by R. C. Burton, Zanesville, Ohio, whose paper I believe is to be illustrated by lantern slides of Mr. Burton's plant.

PLANT MANAGEMENT.

MR. R. C. BURTON, ZANESVILLE, OHIO.

Mr. President, Ladies and Gentlemen:

I assure you that it is not an easy matter for me to get up and talk before a body of brickmakers. If it was someone who had never been a brickmaker I could talk better. I am something like the man who told his wife he was going to lecture on the North Pole and its environments, and she said, "You don't know anything about the North Pole," and he said, "Well, neither does my audience."

Of course I am glad to be in Pittsburgh. In coming before the brickmakers, I am a good deal like the old pious methodist who had belonged to the church for thirty years and they never could get an expression out of him, but finally they prevailed on him to talk in an experience meeting. He said, "I have been a good conscientious member of this congregation for well nigh forty years and all I have to say about my religious experience is that I want to thank God Almighty that religion is free. In all these forty years it has never cost me a cent." (Laughter.) I have belonged to this organization for a good many years, I have been attending these conventions, but I have never contributed anything towards making them a success. I have been working at home and at the brickyards and I thought that when I came to these conventions and listened to what was going on and paid my little annual dues I was doing about all that was necessary. I feel today that we are lacking as members when we don't put our shoulders to the wheel and help Secretary Randall in his efforts to make this a greater organization. (Applause.)

Someway I felt that I ought to make my confession, that I had learned more of making brick by coming and listening than I ever knew in any other way about the business. I have rubbed up against other fellows who have had just the same problems as I have and have gone against the same propositions that I had, used machinery that he didn't find worth while, and threw that out and bought something else. We never increased the price of brick when a machine was a failure, but we always bought another machine when the man came along, but we have all done our part in developing the brick business to what it is today.

Spurgeon once said that he once noticed an old woman in the congregation who had been coming and listening to him preach for years, and one day after the service was over he managed to get around and head her off and ask if she had heard the sermon. She said, "Yes, I heard the good man preach." He said, "What did he talk about, what was the text?" She said, "I can't remember." "Well, he said, "it seems to me you are not getting much out of the service. Where do you live?" She said, "In Kent, sir." He said, "Well what is the use of coming so far if you don't get anything out of the sermon?" She said, "Oh, sir, I bleaches linen for my living, and I come in on the train to hear the preaching on Sundays, and I take my linens and spread them on the lawn and sprinkle water on them, and when the sun comes out it dries them out. I keep repeating that and after a while the linen becomes white. I come to the church and hear the good man preach and go away. I always feel better, although I can't remember, I don't know that it does me any good, I don't know what makes the linens any whiter, but I do know the preaching does make me feel better." So I feel that way about the convention. I have never done anything to make them better, but have always wanted to listen to others, so anything I present today is information I have gained by experience.

R. C. Burton, Zanesville, Ohio.

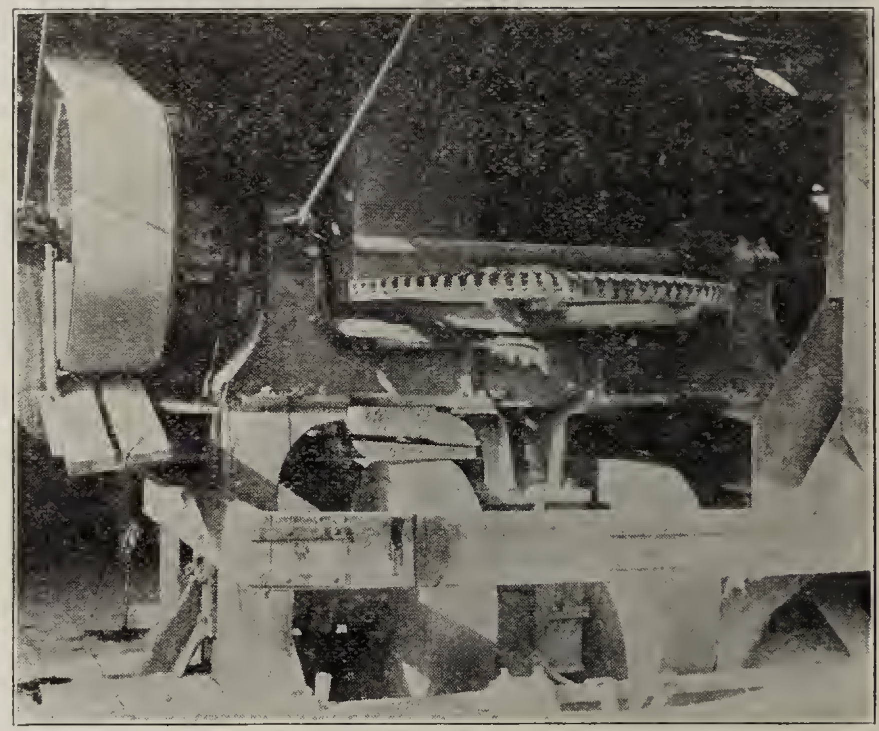
I have traveled around and seen most every brick plant of any consequence in the country. I have made a little money in the brick business, and then I have turned around and spent it for something I have thought would make better brick, so anything you may see you may know is something I have tried to work out in an effort to make our material better. We have, I think, a little bit of machinery from every reputable concern in the machinery business. We have never adopted any particular line of machinery or kilns.

We have always liked to have brickmakers come and see our plant, and I know a lot of you have been to Zanesville. The various plants of the country all have their peculiar circumstances to deal with, all have peculiarities of their own and I have tried to adopt the methods and machines best adapted to do what we want to do. I do not know that I have anything else to say, except to show my pictures.

Number one is a general view of our No. 2 Plant. This plant is on a level with No. 1 Plant which you will see later on. We have a shale bank with a molding sand formation on top of about thirty feet, then about thirty feet of shale, then coal below that, and then twenty-seven feet of fire clay.

Number two shows the same plant, the shale bank on the left, notice the broken surface on top, thirty feet of molding sand which we prepare for foundries, shipping it as far east as Boston and as far west as California. The freight alone to California amounts to $12.60 per ton.

Shale Bank at No. 2 Plant.



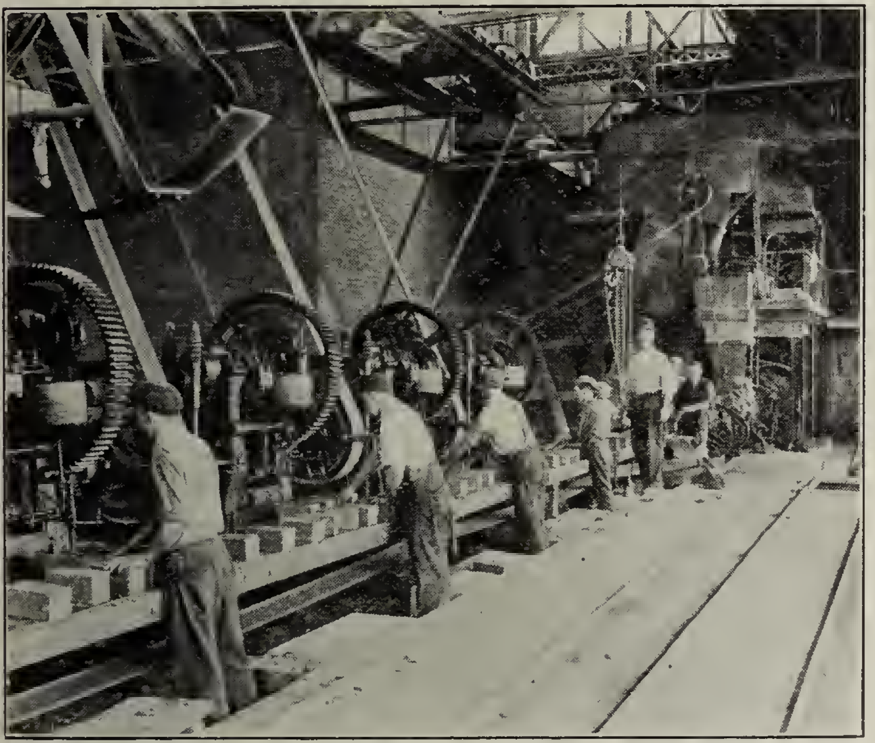
Dry Pans Beneath the Crusher.

View of Kilns, Showing Method of Loading Cars.

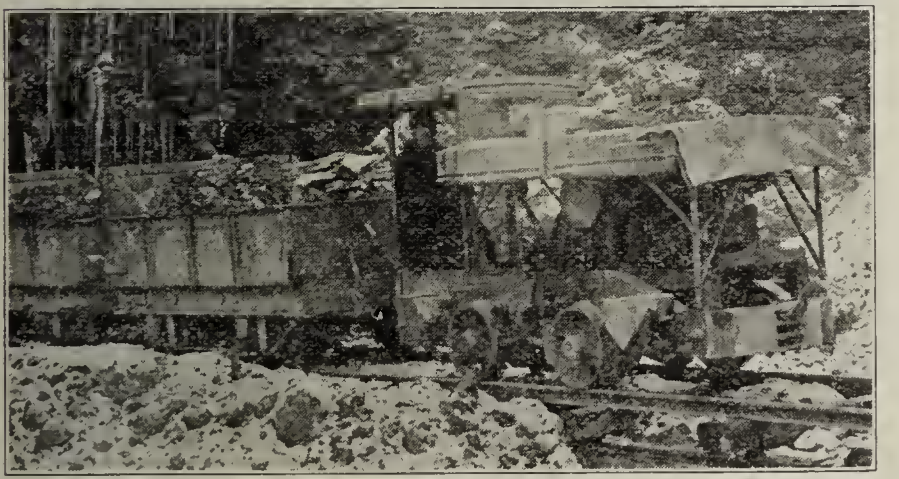
At the No. 2 Plant the shale is loaded in iron cars holding about three cubic yards, drawn from the shale bank to the incline below the crusher by a gasoline motor. It is there taken up the incline, the end door automatically lifted, the shale chutes back into a hopper over the crusher, the friction loosens up on the drum, the switch is shifted and the car goes back on an empty siding. Then the track is clear for another car to be drawn up and so forth.

We use the heavy cylinder crusher made in Holidaysburg, Pennsylvania. For our purpose this is the best crusher we have ever used and gives us entire satisfaction. The crusher is thrown in and out of gear instantly in order to supply the dry pans which are located directly beneath, with sufficient shale to keep them properly supplied with the crushed shale. One man is all that is needed to look after this entire operation. It is worth the while of any brickmaker using hard material to look this installation over.

Car Loaded with Clay Going up the Incline.



Presses at No. 1 Plant.



Shale Bank, with The J. D. Fate Co. Locomotive "on the Job."

Number three, this shows excavating below the level for the fire clay. Notice the sand and the coal and then the shale. We strip the coal off the fire clay.

Number four, here are four presses; we aim to keep our machines full of clay all the time. We find we do away with a great deal of lamination if we keep the machines to full capacity. We find it better to take the surplus brick and run them through the machine again rather than to slow down. As I said, if we keep the machine running to full capacity we have less lamination.

Number five, this simply shows the construction of a kiln which was being torn down to be rebuilt again, which is quite a common sight for most brick men.

Number six, this is a view of the kilns, you see the loading tracks below. There is about 30 feet between the cars and the end of the kiln, that space is always kept clear.

Number seven, another view of the kiln showing at the right the goose neck taking the heat from the kiln which is just burned off, to the dryer.

Number eight, another view of our yard on the north.

Number nine, this is one of the dry pans beneath the crusher. You can see just up at the right hand corner one of the heavy gear wheels. Just at the right hand side of the dry pan, the chute where the crushed shale drops into the dry pan. We found that one crushing machine increases the out-put of the dry pan fully 50%, possibly more. The dry pans have never been overhauled in four years and a half. We make our own screen plates. One of the boys on the yard has patented the idea. I gave him the privilege. There is one set of screen plates been there for over three years. The main point of filling the pan from the crusher is that it reduces the labor. The man above can look right down into the pan and can always see that the pan is filled properly and uniformly, and we get a better mix.

Number ten, this is another view of the shale bank. These little gasoline locomotives are made by the J. D. Fate Company of Plymouth, Ohio. As the car is taken up the incline the little rollers on each side of the end of the car strike the car wheel, releases the end and the clay is thrown out behind, right into the top of this crusher. This is an excellent little locomotive, we have six of them now working in our sand plant and brick plant; we could not get along without them. No sick horses, or men, to take care of them at night, etc. All of that annoyance is done away with. We find this one of the greatest savers we ever adopted in our plant.

Shale Bank Showing Stratas of Coal, Shale and Sand.

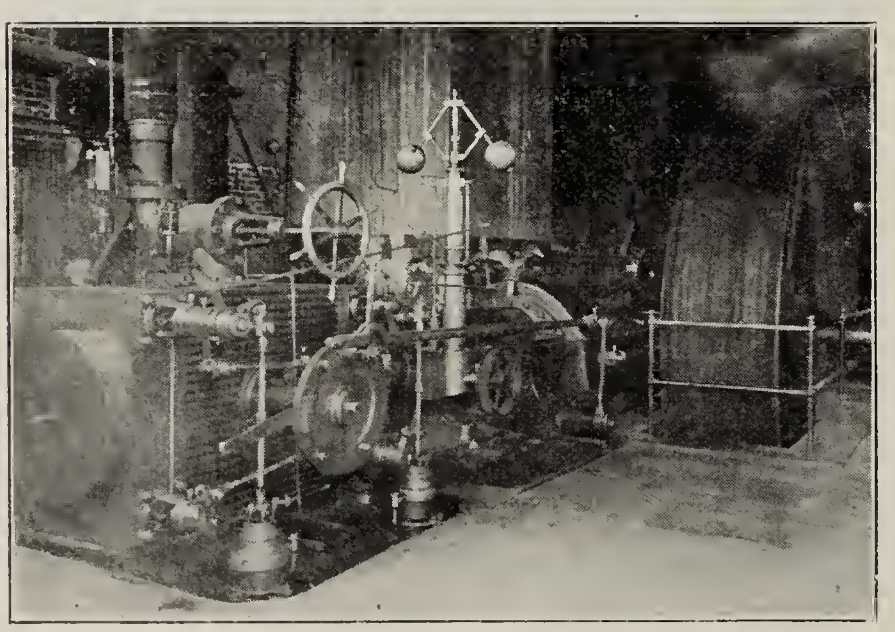
Number eleven, this is another view of the North end of the kilns I was telling you about. We take the brick out of the south end kilns and load on the cars. Here we stock the brick on the yard, then in the event of a rush we take our loaders and load from the stock. The storage and machinery house is seen in the distance on the left hand side of the picture.

Number twelve, another view of the car going up. Each car is switched onto an empty track, and the next car is loaded and goes on, saving time in the switching, and the man can keep on loading right in the shale pits. The cars are of iron. In that long building, we have forty feet of storage bin. In the event anything stops in the machinery room, we simply switch off and the shale drops down into the storage bin. We have a belt which carries the material right over to the elevator over the brick machine, and we carry in storage enough to run a week.

If we have bad weather or a break down we have a week's run in there. We have figured that about the only way to make any money in the brick business is to run every day in the year. In the thirty-seven years we have been in the business we have kept going constantly winter and summer, and I have men who have been working for me as long as I have been there. Some of the men work overtime, and we have one man who by his overtime has gained nearly three more years in the thirty-seven. Ten years ago I visited the plant of the Purlington Paving Brick Company at Galesburgh, Illinois, and I found they were dropping their shale down into their storage bin and then to the crusher over a belt. Their foreman said "I would never have another one of those things," but the idea struck me as being good, and I asked him what was the matter with it. He said, "the fine clay falls down underneath the belt and the belt drags, and we have to stop and take it up." About three years ago I went to Eben Rodgers' plant at Alton, Illinois, and found he had a storage bin between the dry pan and the brick machine. So in building this storage bin we have enough room below the floor level that a man can get underneath from one end to the other and with his shovel throw the clay back on the belt and it is carried back to the machine. There are electric lights which make the place as light as day. The same belt has been running for three years and we have never spent one cent on it. This is simply an improvement on another man's idea. I do not claim it for my own.

Square Kilns at No. 1 Plant.

Grinding Department at No. 1 Plant.



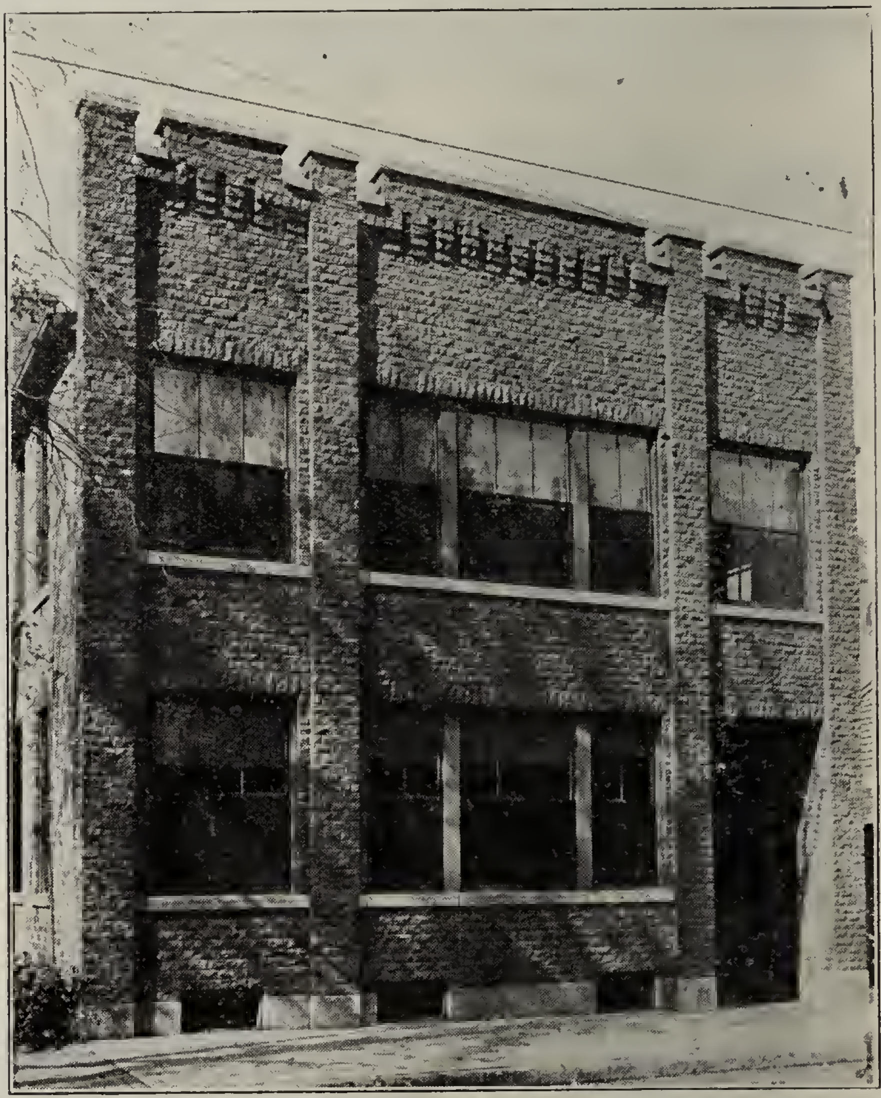
500 Horse Power Corliss Engine.

Number thirteen, this is a view of No. 1 plant. Here is an apparatus we use in changing our dies. Notice the chain and block. We switch that on and throw it around so it only takes one man but a moment to attend to the dies. Now, right behind this is the storage bin, and right above that is the elevator that brings the clay into the vat above the pug mill. In hot weather the boys complained about the heat. Eighty thousand paving brick a day is what we want to get out on these four presses—the capacity is a little over one hundred thousand—several times the boys in rivalry have run 500 tons a day, so you can imagine they get pretty well warmed up. They got an idea from the flying machine, or propeller, so they have constructed a propeller, using the iron blades and reversing it, and it throws a good cool draft, and you never find a boy working there with a damp shirt. They are kept cool all the time and they drink less water. This is a little thing, but sometimes it's the little things that make the men discontended or contented. (Applause.)

General Discussion.

Question: How fine is your material ground?

Mr. Burton: Just as fine as we want it. It is regulated by the screens. I think we could easily put through the dry pans six or seven hundred tons a day. If the hopper gets full we have enough side tracks and cars to keep the loaders going, all that is necessary is to keep the hopper full above. We are satisfied there is an advantage in putting the crusher in ahead of the dry pan. The shale does not need breaking up too small. These men make better time because they can put in larger pieces in their car, load their car faster, and the crushing machine does the work of the men with the sledge hammer. This arrangement is worth coming to see in operation.



Office Building of Burton-Townsend Brick Co.

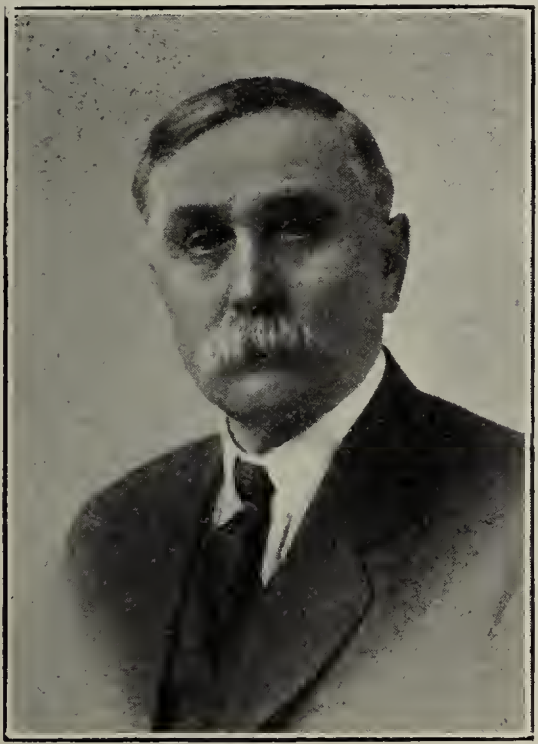
I want to tell you frankly, we are very glad to have brick men come to see us, and all of our men realize that every man who comes to see us has something to pass on, and they try to find out what this trouble is and our foremen and men have found out more about making brick from hearing other men's troubles than they could learn in any other way.

We cannot use a steam shovel in our shale bank and get the proper mixture, and in going around to different places using steam shovels I find they had some trouble in keeping up the steam shovel plant. I asked a man at a plant at Galesburg how he liked the steam shovel. He said, "All right." I said, "What about inventory for repairs?" "We carry our own repairs, we have about $10,000 in repairs for steam shovels." However, if my materials were such that we could use a steam shovel, I would use one. I am not condemning the steam shovel.

Number fourteen, here is another view of our shale bank. Immediately underneath at the right is our coal; above that is the shale. Still above that is the molding sand to which I have referred. This gives you a pretty good view of the stratas as we have it at our plant. Nearly every kiln we build, we have at No. 2 plant, moved enough coal for three or four burnings, and the men go in with their wheel barrows and load them and take it to the kiln. Every brick man who comes to see us says, "Well, with your coal and shale and everything, you have the advantage of us." But we have our troubles too.

A man tells a story about a New York man—Mr. Hammond may know him—there was the most wonderful surgeon living in New York, and a man telling a friend about him said:

"He can take a man's brains out and clean them and polish them up like you do machinery, and put them back in again." So the friend went to see this great surgeon and had him take his brains out, and he went away and left them with him. Well, the man did not come back for his brains, and the physician got worried about it, and one day he was out in his machine and he happened to see this man so he stopped his car and hailed the man and said, "Look here, my man, your brains are still over at my office." "Oh," said the man, "that's all right, I don't need them, I have bought a brick plant, and I don't need any brains." (Laughter.)



J. Fred Smith, Omaha, Neb.

Number fifteen, another view of No. 1 Plant. We have tried square kilns, and we have been convinced the round kilns are the best; then a fellow comes along who has made an improvement on the square kiln and we try that; then the next thing you know we try a round kiln again. We think the burning question has never been settled. I think some ingenious fellow will come along some day and teach us how to burn brick.

Number Sixteen, another view of a kiln we are just finishing, putting the crown on. The furnace is built right in the wall. One of the founders of this organization, Mr. W. A. Eudaly, and we should give him credit for the first restangular kiln, started trouble for us all, and we owe him a great deal for his idea in kiln construction, and yet he would not recognize his kilns today for the improvement made in them. This kiln holds 100,000 paving brick. We use rails for our buck staves and bracing walls.

Number seventeen, another view of the lower plant—this is No. 2 Plant. Our over burden is really one of the best profit producing materials we have. When that is stripped off we are right down on pure shale.

Number eighteen, this shows our Corliss engine we use for running our plant. When we started in the business thirty-seven years ago we had a mule and cart. The brick were hand molded and we turned out 5,500 brick a day. My next move was to put in a 10 H. P. engine and we made 15,000 a day. Then we increased our capacity to 30,000 per day, and so we have gone on increasing our power and capacity and the last move was to put in this Corliss engine about eleven years ago. The one you see here is 500 H. P. and we have never had $25.00 worth of repairs on that engine. The card shows the highest power used on that was 283 horse power, and that engine travels along as though it had no load at all, so I attribute the success to having about double the power we need. I find that policy good in almost all phases of manufacture.

Number nineteen, this was our first building. After our consolidation five years ago, we needed more room, so we constructed this office building. These brick were taken from the culls of the hardest paving brick we had on the place, and it makes a very nice appearing building. In addition to that it is a good way to use up culls, and if people generally knew it, there would be a demand for these culls. They are regular paving block size, the face is pitched off making a rough face appearance.

I thank you, gentlemen, for your indulgence and will be glad to see any or all of you at Zanesville at any time. (Applause.)

President Robb: What is the next order of business, Mr. Secretary?

Secretary Randall: In order to give your eyes a little rest, we want to introduce a little diversion. There is a gentleman here this afternoon, Mr. Willis A. Moore, of Cleveland, Ohio, who has a message for you.

A Plea for Americanization.

Willis A. Moore: Mr. President and Gentlemen. If you are like the men I know in Cleveland, Mr. Blair and Mr. Greenough, you are all square and upright and on the level. In our reconstruction work, if we are to be successful, I know this, that the men who are building these buildings have the right ideas, have the right thoughts, feel the right feelings, have the right point of view, have the right methods, you can get along with them. My business is not to deal with material as is yours, but to deal with constructive ideas, constructive truths. I represent the National Industrial Speakers' Bureau of Cleveland. It is the successor of the National Service Section of the United States Shipping Board. They send speakers all over the country whose business it is to inspire and encourage the workers. It was a new thing in American business, but it has been so great a thing that they want to see it carried on. The agitator never sleeps, the Bolsheviki type, alive, alert, awake in this line, destructive propaganda is going on, and that must be met and matched by constructive propaganda handled by men who know how to speak to and with working men. Some of us had the privilege of talking to hundreds of thousands of working men and women in all lines of industries, and to all sorts of conditions and types of working men. Now, I talked to the coal miners and workers last night, and the night before we had a wondrous meeting in the high school auditorium, to 500 in one case and 800 in another. The work with these men is constructive, giving them the right idea.

We found 50 per cent. of the men who are not American citizens, and through an interpreter I asked them if they wanted to become citizens of this country which has become not only a great world power, but the greatest of all world powers. I make men feel that and see that, and I ask them if they want to become citizens and eighty or one hundred raise their hands and say "Yes," they want to become citizens of the United States. Then I want those who are American citizens to raise their hands, and then I say you are not 100 per cent. American until you become big brothers to these fellows here and help them take out their first and second papers and make them United States citizens, and then I ask those who will do this to hold up their hands, and as a rule, all hold up their hands.

The Ford Company has issued a little pamphlet telling them what to do to become citizens. I have now to catch a train to get to another town to attend a meeting of miners tonight. This is the most important work I have engaged in in my life, and I am in it because it is so important. I am in it because I can do it. The working men believe what I say, they know I am telling the truth, and when I get through with them, I defy any Bolsheviki man to get them by appealing to their lower side, because I appeal to them at their best. These fellows have hearts like you and I have. I love these men. I go to them and tell them their job is a fine job, and I try to link up their jobs with the big things of the world.

I read a report of your last year's meeting, in which some one said in speaking before you, there had been three billion dollars' worth of brick construction which had not been put through because of the war. Now the war is over, and that three billion dollars' worth of building is going to be built, and there is going to be a job for every man. It may not be settled for a little time. Don't let any long-haired, red-neck-tied fellow start the fellows wrong at this time. We have got to pay for that hell-on-earth that Germany caused, but it is only a small price compared with what they are paying for over there, and I tell the boys what a price they are paying over there, and we ought to smile all the time and thank God every day of our lives that we are living over here in America. They feel that and see that, and so it is my job by using constructive proof, and putting it down with all the ability I have. I have gone down to where the men really live. It is my job to help hold the job and labor on an even keel. We have organized to say this work must go on. Eleven million men have lifted up their hands during the war period, and I shall always see that flame of hands, a flame of patriotic devotion, by taking what I call a 100 per cent. pledge of devotion. They are somewhat dirty hands, but to me they are beautiful hands. They have said "until the boys come home, I will stick at my job, I will do an honest day's work, I will do anything the President of the United States calls on me to do, so help me God." They have sung a verse of America, or two, and then given three cheers for Pershing, three cheers for the French, and three cheers for the Slavo-Czecho nation (I have Polish and Czecho-Slavo both) and we gave three cheers for the small nations, and then they gave three cheers for the large nations, because I tell them we are standing by the colors, and their jobs link up with the constructive work, which we as 100 per cent. Americans are going to do, and they gave three cheers for the new age, and their jobs linking up with the new age. I have reminded them that their job is as big as any one's job because it is an important part of the world's work.

You will be surprised at the morale, or the right spirit of the workingmen. You see you are working to link them up of course with the greater love for this great America, of course, in showing them their necessary part. I wanted to tell you about this great work. I want to combat all this war disturbing, destructive propaganda that is spread around the country by German propagandists. We must all do that.

I must not take more of your time, I would like to tell you more, but you are busy and I must catch my train. I am glad to have been your guest and to take your badge with me, but I could do much more if I had the pleasure of being your guest at your plants and talking to the men. I want to stand on a piece of machinery and get the men around me and then tell them the things they cannot forget. I hope to have the pleasure and privilege some time of serving some of you in that capacity. I thank you. (Applause.)

Will P. Blair: Up until the time Mr. Moore accepted the service of the Government of which he speaks, he was a celebrated Universalist preacher, in Buffalo, N. Y., in one of the wealthiest congregations in that city, but he said after he got out to speaking to the men in this other service, he forgot silk stockings and was going to forget them the rest of his life.

President Robb: The next number on the program is a paper by Frank W. Wood on "Industrial Highways," to be illustrated with moving pictures.

Frank W. Wood: I will read my paper before the lights are turned out, after which I will show the films.

INDUSTRIAL HIGHWAYS.

FRANK WOOD, DANVILLE, ILL.

Mr. President and Gentlemen of the Convention:

One of our most prominent engineers recently made this statement over his own signature.

"In no case is a greater depth of brick and concrete beam required than is required where concrete alone is used."

It seems the building of roads has passed the stage where the individual farmer works out his road tax by hauling a few loads of gravel or stone and scattering them to suit himself.

The people are demanding roads under general plans and systems, and the best road that can be built, looking toward constructive economics at last, and it seems that now is the time for the brick manufacturers to get in their personal work in each community, seeing to it that the taxpayers get full value received for their money. Rarely do we lose a job when we get right down and work with the people, inasmuch as the successful handling of our competition is a matter of education and demonstration.

A County Commission recently in visiting our plant and also going over our roads, made this remark:

"Back twenty or twenty-five years ago what would the people of these Illinois towns have done had it not been for brick with which to pave their streets? If brick were good then, and have lasted so long, with other so-called modern road would have lasted half so long?

He was of a party of sightseers getting information in regard to eight miles of twenty-foot road, on which the viewers had reported CONCRETE. The party returned and reported unanimously for BRICK.

Nearly all are now familiar with the many statistics on horse power loads, draw bar pulls, and gasoline ratings on all the different types of road surfacing, grades, etc., and how favorable all these tests are to vitrified paving brick, even as to moisture absorbtion and abrasion.

Still at a recent state meeting of engineers which was well controlled by cement salesmen and promoters, and at which an attractive paper was read on "The Concrete Road and Its Mission," it was stated that all that is required to build a concrete road is a little stone, a little sand, and some water, that a little cement could be had anywhere. When the engineers left the room they seemed almost convinced that even the Bible was wrong—that Adam was not made from clay, but that he was made from concrete.

Frank W. Wood, Danville, Ill.

The picture we will show is of a 6½-mile road built between Milford and Stockland, Illinois. It might be classed as a resurfacing job on old gravel, in all sorts of soil conditions, black, sandy and clay, with average grades, curves and fills.

It is a BRICK TOP concrete slab 5 inches thick, built with 4-inch Dunn lug brick, and 1-inch of concrete between the brick and the sub grade. It has been finished over three and a half years, has stood hard traffic, and is in splendid condition.

It is not my intention to start an engineering question as to the thickness slabs should be, but to illustrate what the Danville Brick Company has done along this line in the last three or four years with 4-inch brick on 1, 2, 3, 4 and 5-inch concrete and 3-inch brick on 4-inch concrete. All these types are in perfect condition.

The thin slabs, with 3-inch and less of concrete are all smoother, owing to the easier handling of the thinner mass, on which the small roller is more effective.

Less objection or fear is expressed generally to the thinner slabs on resurfacing jobs. We have taken this matter up with many engineers, and they agree with us that the first step toward a permanent road is to plan for the future over the whole county or township, straightening the alignment, grade and drainage, of all roads gradually, so that every load of gravel hauled on the right of way is conserved, by putting it in the proper place, thus building up a subgrade or base for future resurfacing that will hold any road. By this means every dollar of maintenance put on gravel or stone roads can be saved for the future road bed, and the system begins to take shape.

Many roads have been ruined in attempts to quickly straighten out these established grape vine routes, without proper fill and settle.

The two factors in a road are of course the subgrade, and the wearing surface, and no road will hold up when the subgrade fails.

No doubt the condition of the subgrade in the roads I will show you accounts for the splendid condition of the slabs, and if proper drainage is maintained the roads should last through generations.

We are always glad to show visiting engineers, and other officials who visit Danville, these different types of slabs in service so that they can see for themselves.

In regard to the absence of cracking of the thinner slabs as compared to the heavier types, it may be due to the presence of less free water, the ease of vibration, and the concerted movement of the thinner, richer, denser mass. Whatever the cause, these roads seem to show that the thinner slabs crack less.

Consider, if you will, a 7-inch concrete road. It is recommended by the concrete engineers.

Consider a 7-inch BRICK TOP concrete slab. We will be glad to give you the results of the many tests comparative of the two made by the Engineers at the University of Illinois, all tests showing the BRICK TOP concrete slabs to be much stronger.

Consider the 10 or 11-inch roads we have been building, 4-inch brick even with sand or asphalt filler, laid on 1½ inches of sand, on a 4, 5 or 6-inch base of concrete. Wood block and asphalt are laid this way, even using a much weaker concrete mix in the base. Is not the load bearing transverse strength, and the weight distribution principally on the concrete base? Have we not a better load bearing base and wearing surface combined in our 5, 6 or 7-inch BRICK TOP concrete slab?

It is not our desire to recommend an attempt to cheapen a road so that it will not stand up. We do want to prove a way to construct better roads, and the roads we will show you, all over three years old, seem to prove that with the subgrades in proper shape, it is an unnecessary waste of the taxpayers' money to haul on the right of way more than 6 or 7 inches of brick and concrete, with all due consideration of heavy traffic, and high speed motor truck traffic. (Applause).

Mr. Wood proceeded to show two moving pictures, one reel of some of the brick roads in Illinois built by the method described in his paper, and the other giving scenes in and around the plant of the Danville Brick Company.

President Robb: I am sure we are greatly indebted to Mr. Wood for these fine moving pictures. Will P. Blair, of Cleveland, Ohio, is to lead in the discussion of the paper.

BRICK PAVED ROADS.

BY WILL P. BLAIR, CLEVELAND, OHIO.

Mr. President and Gentlemen of the Convention:

After looking at Mr. Wood's pictures of roads which have put you in a trance, I do not know that I can add very must to what has been seen, for you have seen a lot of fine roads that have been built in the State of Illinois. But I am thinking of road improvement from another viewpoint, differing greatly as to the reasons usually urged in support of improving our highways. The road builder of years ago used to stand up before an audience and talk about mud roads and appeal to the public for roads that it might help up-build the spiritual condition of the country. That was all well and good, for introducing one part of the country to another will accomplish a lot of good. You would not stand in need of quite so much urging for a moral uplift at the hands of men like Dr. Moore if we had more and better roads in this country, and people could travel more and say "How do you do" to a neighbor 100 miles off. But aside from that view point, I want to remind this audience, because I feel like I am talking to friends who will listen and carry home what is said, that it is the necessity for transportation facilities afforded by improved highways to carry commodities from one part of the country to another that we need right now. The railroads and the water ways cannot respond to the needs of the country. Our railroads have been built for cities of ten, fifteen, twenty and twenty-five thousand inhabitants, where now these cities are cities of fifty, one hundred, two hundred, and in many instances of half a million people. In our larger cities today nearly one half of the commodities are hauled for five or six or even ten miles over the highways to the actual delivery point, because of congested condition of railroad yards and unloading track, which prevents cars from nearer placement for unloading. I want to remind you of the people in great cities of the past who were fed and kept alive by transporting in ox-carts what the city needed over the highways. Now, we have automobiles and the auto truck. Serious illumination of transportation possibilities is a recent traffic census of three steam railroads which pass between the cities of Akron and Cleveland, Ohio, forty-two miles in length and the one improved highway over that same stretch. There was transported over that one highway in one week over 5,000 tons and over the three railroads 6,000 tons. I am going to show you that highway presently.

The Brick Highway Over Which was Borne to Market 160 Bushels of Apples per Single Truck Load Referred by Mr. Blair.

There is located on a brick road leading out from Cleveland forty acres of orchard in which was grown this year 9,000 bushels of picked apples. The owner of that orchard transported that crop to the city of Cleveland, 160 bushels to the load, and it took him half a day to make the round trip. You can scarcely figure the gas that it took to deliver that apple crop.

Another gentleman living on the same road, not having an auto truck but with two-horse team hauled 36 barrels per each load of apples five miles. Another man hauled 85 bushels to the market. It took him but an hour to drive in. Just at the time that I learned this was going on, in reading the paper at the breakfast table, I came across a dispatch from Brazil, So. America, that the government of Brazil had appropriated so many millions of dollars for the building of roads for the coffee industry of that country. I said to myself, inside myself, they are building roads in South America to cheapen the cost of coffee for the people of Cleveland, Ohio. The point I want to make is this. I have told you of the story of the transporting of the apples so cheap over 18 miles of brick roads, yet the price of the apples per bushel in Cleveland was from $2.50 to $2.75. In the other direction from Cleveland, ten miles beyond the end of the improved highway, farmers who lived out on a mud road who were producers of apples, were asked as to their prices and one who had three thousand bushels, replied, "You can have all you want for fifty cents a bushel." "Why don't you take them into Cleveland?" he was asked. He replied, "How can I haul apples through these mud holes?"

Stepping out of my house over to the grocery one morning I found a man taking beans from a little Ford truck. I said to him, "What are you getting for your beans?" "One dollar a basket," he said. "How far out do you live?" "Fifty-five miles." "How many baskets did you bring in this morning?" "One hundred baskets." "How long did it take you to come in?" "I started about six and it is now about eleven." "Do you do this very often?" "No, this is the first time I ever did it. I live out fifty-five miles and I decided that I would load these beans up and bring them in, as this is the first time in my life I have ever known the entire road to be fit for travel." There is an argument for you in favor of brick paved highways.

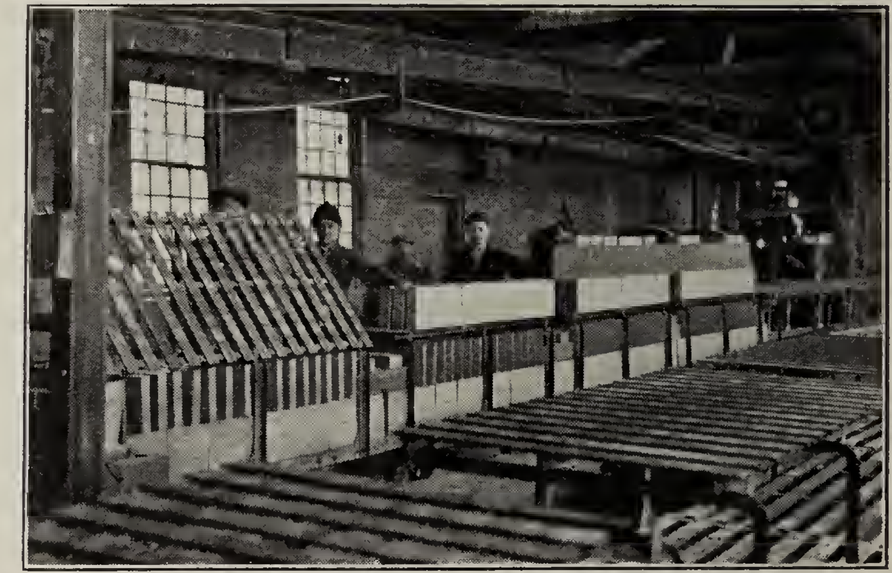
Because of the soft corn a year ago, that had to stay on the farm and could not be brought into the towns, we lost over $3,000,000.00 in this country. The only possible avenue of relief in this direction is the highway, and we have got to come to it whether we want to or not. Every man, woman and child is interested in this proposition, as much the countryman as the buyer in the city. As to the quality of the roads, we have got to wake up. There are so many points in this direction, I am not going to take your time just now to discuss it. But we have got to build the type of road in this country, with some understanding as to what that road has got to bear, with some understanding of the character of the soil on which the road is built, and by scientific engineering, meeting the economy of the situation. Mr. Wood showed you on that screen, an old road, I believe he said, twenty-seven years old. We have them from twenty-seven to thirty years old—brick roads in this country. There is one thing perhaps you did not notice in his pictures and that is the absence of brick which have been injured from the wear and tear of the traffic. If injured at all, it is because it was placed improperly in the street or because of some climatic condition, that was not provided against in the construction of the road. We have many, many brick roads in this country, all the way from twenty-seven to thirty years old, that have not called for one penny of repairs. There is one point that I want you to bear in mind. How often does it happen that when men in any community go out to investigate as to what kind of a road they would like to have, they are almost certain to be shown a road that is in a fair condition and in many instances is not three years old and sometimes but two or three weeks old. You can build a road out of most any kind of trash that will remain fairly good for two or three weeks or months. It is therefore a most dangerous position to rely upon a choice of the kind of road desired from so meager a viewpoint. But from choices made upon such delusive evidence is to be found the causes of so many unsatisfactory roads in this country, and waste of immense sums of money. I have a letter in my office from a State Highway Commissioner of the State of Pennsylvania in which he says, "We have spent upon the Lincoln Highway of Pennsylvania this year, $747,000.00 in repairs." It was but a short time since the official then in charge of the construction of this road, boastfully stated that for the large sum of money he was expending on this road, he would give to the State a road that would withstand the traffic for many years. However, the money which he expended in the original construction has been wasted. A second sum was wasted about two years' ago in repair and now this large sum represents the third and probably futile effort to make this road a highway for travel.

H. R. Beegle, New Galilee, Pa.

The traveler who automobiles over the country often arrives at most extraordinary and erroneous conclusions concerning types of roads over which he has passed. Without examination and inquiry as to the character of the road, with what it has been constructed, how long it has been in service, or how much has been expended for repair, if perchance it so happens that the road for the time being affords the luxury of smooth riding, it at once is given approval. It is from such unreliable judgment that taxpaying communities are often led into expenditures for roadbuilding that are utterly without value.

Future Workmen and Their Sweethearts, Beaver Clay Mfg. Co., New Galilee, Pa.

Stock Shed at Plant No. 2.



Double Deck Dryer Cars.

(Showed pictures of brick roads.)

Mr. Blair: Now, there is one thing more I want to say. There is a program on foot to introduce a bill before the Congress of the U. S. elevating the highway question to the place where it belongs in the interest of public welfare in this country, by providing for a Federal Highway Commission and I hope the brick makers, when the time comes when you are called upon will give the bill the support it should have.

Vice-President Hammond in the Chair: Secretary Randall will announce the next number on the program.

Secretary Randall: We will skip over to tomorrow afternoon's program and hear an address on "The Face Brick Business of 1918," by H. L. Kemper, of New Galilee, Pa. Mr. Kemper has some pictures of the plant with which he is associated to show in this connection, but as he is somewhat modest, Mr. Beegle will explain the pictures.

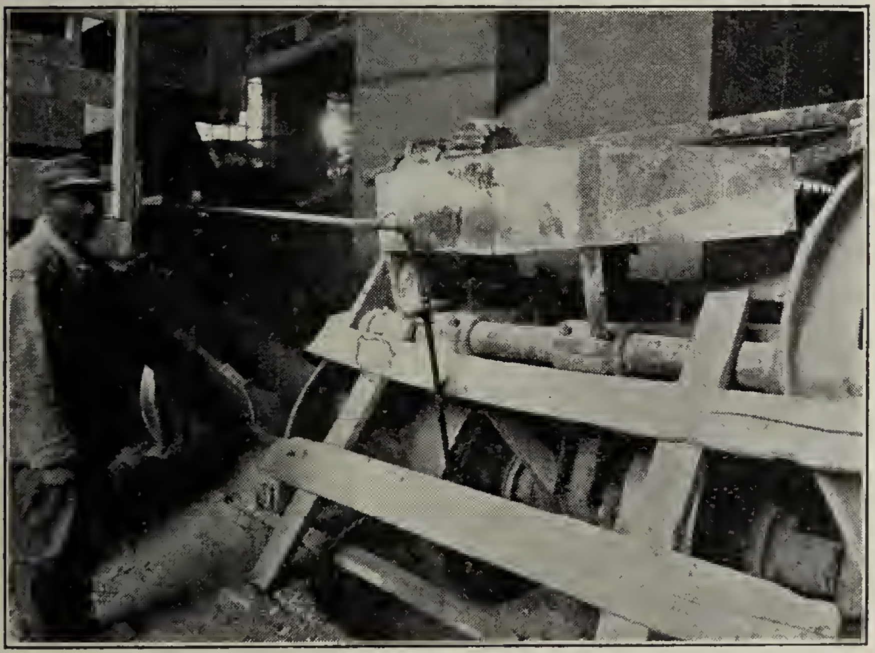
THE FACE BRICK BUSINESS IN 1918.

H. L. KEMPER, NEW GALILEE, PA.

Mr. President and Gentlemen of the Convention:

The face brick business of 1919 cannot be intelligently forecast on account of the uncertain condition of most of the things which directly affect it, and it is going to be a case of what one man termed "Unscrambling the Egg." Since the signing of the armistice the war department has cancelled over two billion dollars worth of contracts, exclusive of aeroplanes. The natural result is that business all over the country has received a jolt from which it will take some little time to recover. Of the many peace time industries, what industry has better prospects for recovery than the building industry?

A Glimpse of the Round Down Draft Kilns.



Dry Pans—Note the Brick Elevator Shaft.

In every section of the country there is a severe shortage of buildings, particularly homes and school buildings: In fact buildings of all kinds with the possible exception of factories, and they seldom use face brick anyway. The homes that were built during the war were almost entirely cheap frame houses built by large manufacturers to house their workmen. During this time the building of the better class of homes was at first discouraged by the government, and finally prohibited entirely; but with these restrictions removed a wide field is re-opened to the Face Brick Manufacturer. We have had wheatless days and meatless days and were limited to certain allowances of sugar, which resulted in a great saving of food, but the restrictions against the building industry have simply made it necessary to build twice as much as usual until such time as the shortage is made up. The increase in the demand for face brick should have enough effect on the situation to make this year a good one in spite of the other possible drawbacks.

One of these drawbacks, and perhaps the one which affects the situation more than any other is the attitude of the prospective builder, who is of the opinion that prices will take a big drop. There is no denying the fact that at the present time prices of some of the materials used in building construction are entirely too high to permit very much building, especially for investment. Compare the increased cost of brick with the increased cost of other materials, and we find that the 25% advance in brick is insignificant compared with 75% on cement, 100% on lumber and almost 200% on heating and plumbing. Furthermore by taking a brick residence as a basis for figuring, the cost of face brick for a building is only about 3% of the total cost of the building.

Stock Shed Adjoining Kiln.

In the Clay Mine.

Therefore, it would have very little effect on the situation for manufacturers to pursue a policy of making big reductions in prices notwithstanding the fact that their costs may be somewhat lower.

Even prior to the war the profit in brick making was not equal to that of most other industries and this industry is deserving of a more profitable future.

Another encouraging thing to note is the prompt action on the part of the government to speed up building activities. They are not only authorizing the expenditure of large sums for new federal buildings, but are waging a campaign to encourage prospective builders to begin operations at once, as they realize that this industry will make work for a good many men who were temporarily thrown out of employment.

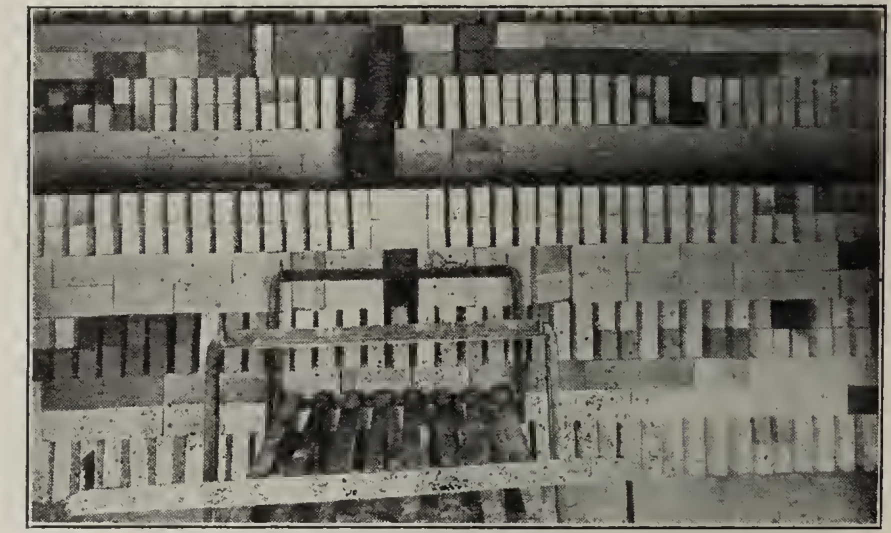
The reports that I have received through correspondence and personal interviews with dealers in all parts of the country are more encouraging each day and we have received more live inquiries in the past ten days that were received in six months prior to that time, and this also holds true in the number of orders received.

The fact that there is already considerable work actually started on the basis of the present high prices of material is absolute evidence of the urgent need of buildings and there is bound to be a gradual increase as the season progresses and conditions become more settled. (Applause.)

H. R. Beegle then showed the accompanying excellent views of the plant of the Beaver Clay Manufacturing Co., at New Galilee, Pa., with which both Mr. Beegle and Mr. Kemper are associated.

Vice-President Hammond: I believe this brings us back to the afternoon program, which is a paper on "Heat Balance of a Kiln Fired With Forced Draft," by Professor Ralph K. Hursh, Department of Ceramics, Illinois State University, Urbana, Illinois. I am pleased to introduce Professor Hursh to the convention.

Kilns at Plant No. 1.


Inside of Kiln.

Entrance to Coal Mine.

Front of Dryers.

Prof. Hursh read a very interesting treatise, which he has withheld from publication for the present for the purpose of revising and correcting. The paper will be published in the near future.

Secretary Randall: The discussion on this paper was to have been led by Warren Ittner, but Mr. Ittner had to leave for home an hour or so ago. Unless there is some one who wishes to discuss the paper, we have something which is not on the regular program. Mr. Jotham Post, of East Williston Long Island, has kindly had a few lantern slides made of some pictures he thought would be of interest to the convention.

Vice-President Hammond: We will be very glad to hear from my good friend and neighbor, Mr. Post.

Something Unusual in School House Construction.

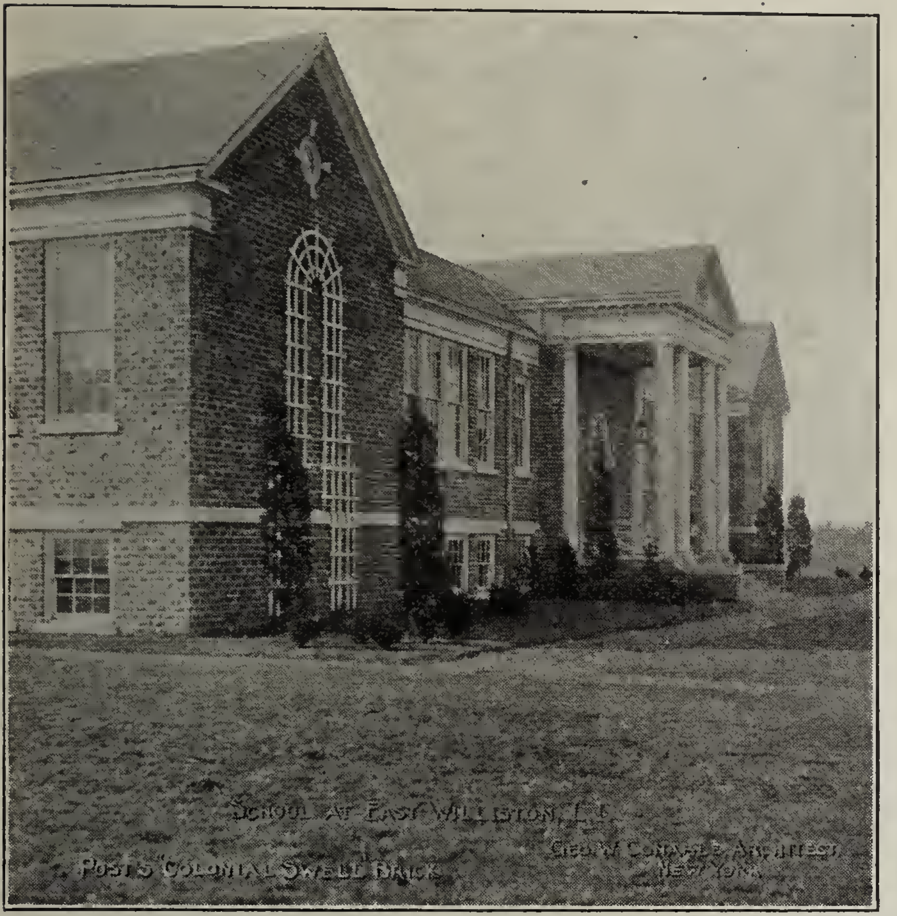
Jotham Post: The idea of having this particular picture, is to show Mr. Hammond, and those of you who make swelled brick, what we do with them down our way. He showed a picture in New York two years ago, of the swelled brick he had used in a home for the plant superintendent. We put up a wall along side of my place in which swelled brick were used, and it took an architect's eye, and he designed a school house in my district of which we are quite proud. The first picture is a general view.

No. 2. This is another view showing how the brick are laid. It is a one-story and basement school, which can be added onto in any direction, without interferring with the original building at all. It is a new idea I believe in building school houses.

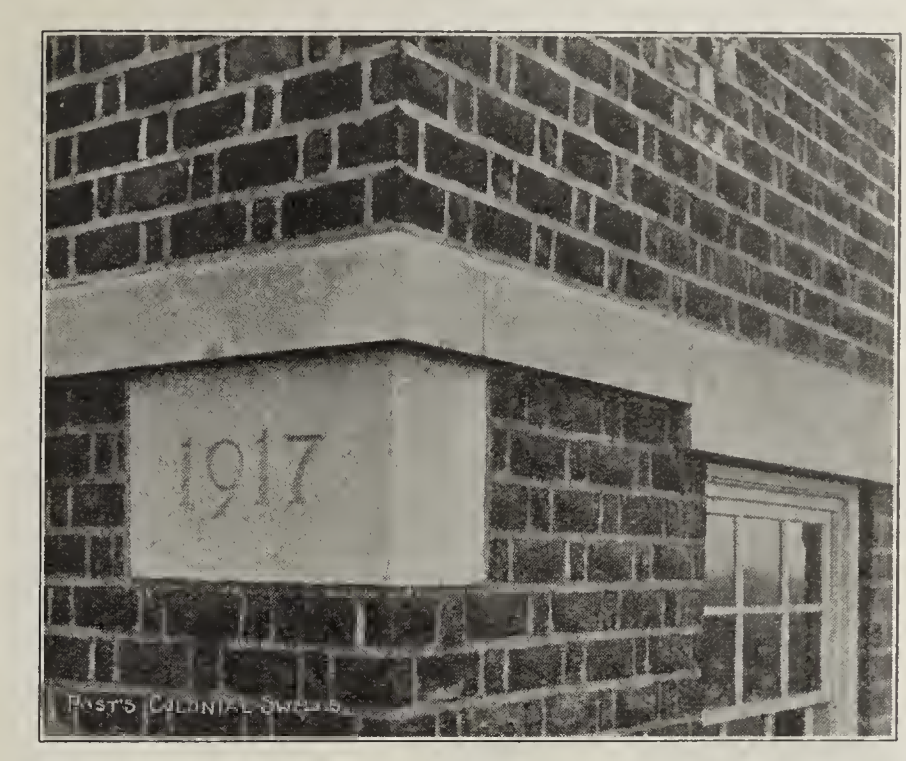
No. 3. This is another closer view, you will see the brick are laid stretcher and header. Camp Mills is about a mile from this school house. As I said, I wanted Mr. Hammond to see what we had done at our place. I had Mr. Eisenhart down and showed him where we had used the swelled brick and he can vouch for the looks of the building. A woman came around and wanted something unusual in the way of brick, and I said, here is something I would like for you to use. I laid the brick up and she looked at it and said: "You know something about colors," and we sold the brick. (Applause.)

Vice-President Hammond: That finishes the program for

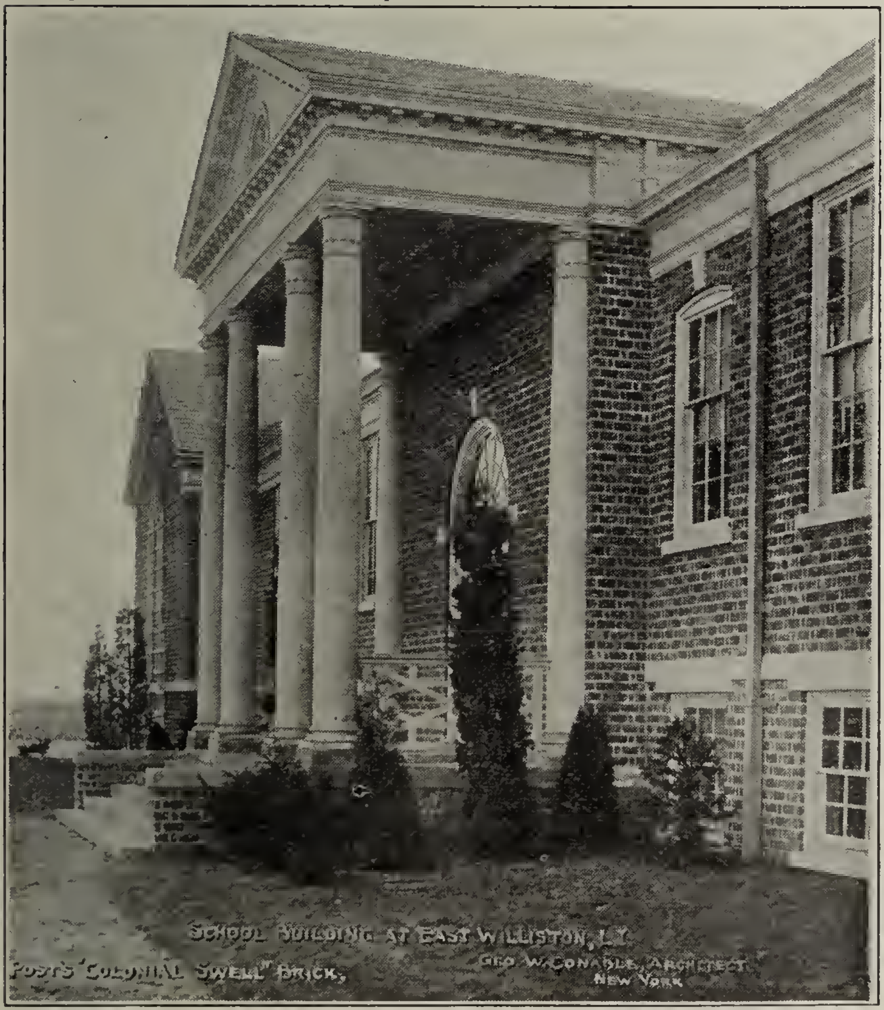
How Swelled Brick Are Attractively And Practically Used By Jotham Post In The Building of Homes And Structures on Long Island.


SCHOOL AT EAST WILLISTON, L. I.
POST'S "COLONIAL SWELL" BRICK
GEO. W. CONABLE, ARCHITECT
NEW YORK

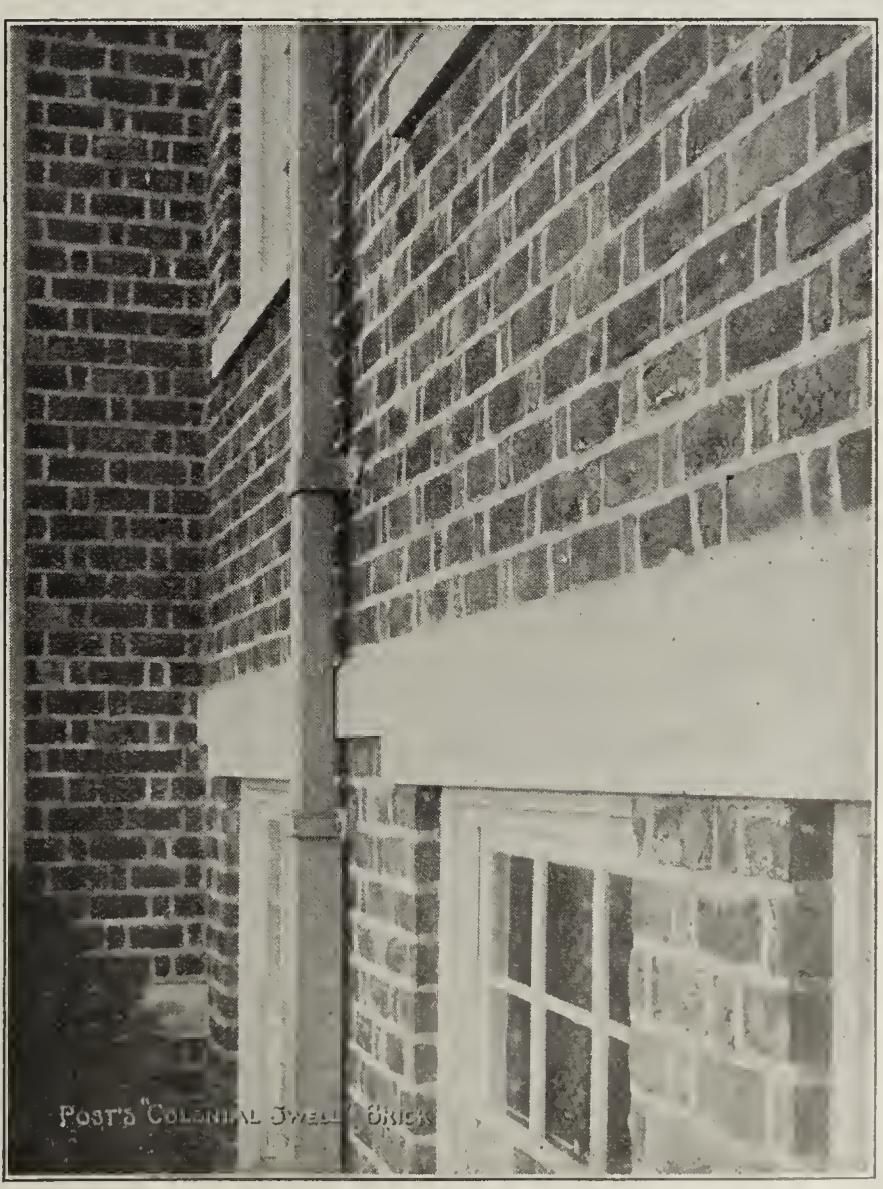
One Story and Basement School Building.



Illustrating Manner of Laying Brick in School House.


SCHOOL BUILDING AT EAST WILLISTON, L. I.
POST'S "COLONIAL SWELL" BRICK,
GEO. W. CONABLE, ARCHITECT
NEW YORK

Main Entrance to Building.



Close-up View of Wall, Showing Stretchers and Headers.

the afternoon I believe. I think it very proper and I am sure the members will agree with me that there should be a vote of thanks for the gentlemen who have so kindly put on the screen the beautiful pictures which have been so entertaining and instructive. I will ask for a rising vote. (Applause.)

Vice-President Hammond: Mr. Marion Blair informs me that he would like to have his Committee on Resolutions meet him this evening in Mr. Randall's rooms at 7 o'clock. A motion to adjourn will now be in order. Carried.

FOURTH SESSION.

Joint Meeting of the Building Officials Conference and the N. B. M. A.

Friday, February 7, 1919, 10:30.

President Robb: Gentlemen, the convention will come to order. I know we were all up pretty late last night, but we have a lot of work to do this morning. What is the order of the program this morning, Mr. Secretary?

Secretary Randall: We are to have a joint session of the N. B. M. A. and the Building Officials Conference. Mr. Rudolph P. Miller, of New York City, president of the latter organization, will preside together with President Robb. We have just mapped out a little program by which the Conference will take charge of the program and direct it until half past eleven, or so, and then the N. B. M. A. can take up our program. We would like to stay with it and finish the entire program, if possible, by half past one. The first number then on the program this morning, which I suppose, Mr. Miller, is on your program also, is a paper on "Brick Work," by W. W. Pearse, building commissioner of Toronto, Canada. Mr. Pearse is not here but has sent a representative, Mr. F. W. Price, who will present the paper.

Jotham Post, East Williston, Long Island and a Front View of His One-story and Basement Schoolhouse, of "Swelled" Brick.

Brick the Standard Building Material.

Mr. F. W. Price: Mr. President and gentlemen of the convention, I have read this paper of Mr. Pearse's since I came, so I am that much ahead of you. As I said in my few remarks at the banquet last night, brick work was established as a building material in England as far back as the beginning of the sixteenth century. We have made the tests referred to in this paper with a view of taking brick work as a standard for walls in figuring all other building materials either up or down from brick work. That was the object of these tests. We have done that with many other materials; for instance, we have tested the fire-resisting qualities of felt and gravel roofing, taking a piece of roofing that had been on for three or four years and testing it against tile, and figuring on other roofing material up and down, with reference to felt or gravel. We have taken asphalt lath and plaster partitions for interior work in houses, and we have tested all other so-called fireproof mill parts, etc., against an asphalt lath and plaster partition, and figured up and down from that, and this is an attempt to test the outside walls. I have a resume of the tests here, and as they will be published, I will not read them, as it would take too long.

STRENGTH OF BRICKWORK.

By W. W. Pearse, Building Commissioner, Toronto, Ont.,

Mr. President and Gentlemen:

At the present time Toronto's Building Department is busy revising their building by-laws. When the chapter on brickwork was reached it was found that the data available on Canadian brickwork was very meagre. The brick manufacturers that supplied the Toronto market kindly consented to allow the building department to visit their plants and select bricks and have them tested. The results are tabulated in Table I. By referring to the table you will notice that the first column gives certain numbers. These numbers are the key to the manufacturer's name, which is held confidential. The bricks selected were not the best bricks manufactured by the different companies, but the type that was usually used as backing bricks and only in a few cases did we select face or very hard bricks, as usually that type of brick is only used for facing.

It was found that absorption entered into the strength of brick in compression. Bricks having an absorption of 12 per cent. and under were on an average of about 38 per cent. stronger in compression and 85 per cent. stronger in bonding than the average brick absorbing more than 12 per cent. of moisture.

After the tests were made as shown in Table I, it was then thought advisable to try and arrive at a relation between the individual brick and brick laid up in piers, so a representative from the department selected one of the poorest types of brick from one of the leading manufacturers and they kindly donated the bricks to build fourteen piers of different heights, the object being to derive a curve, if possible, that would give the strength of brick piers for different heights. It was also decided to let the piers set for a period of about three months as this was considered the least time that the

TABLE I.

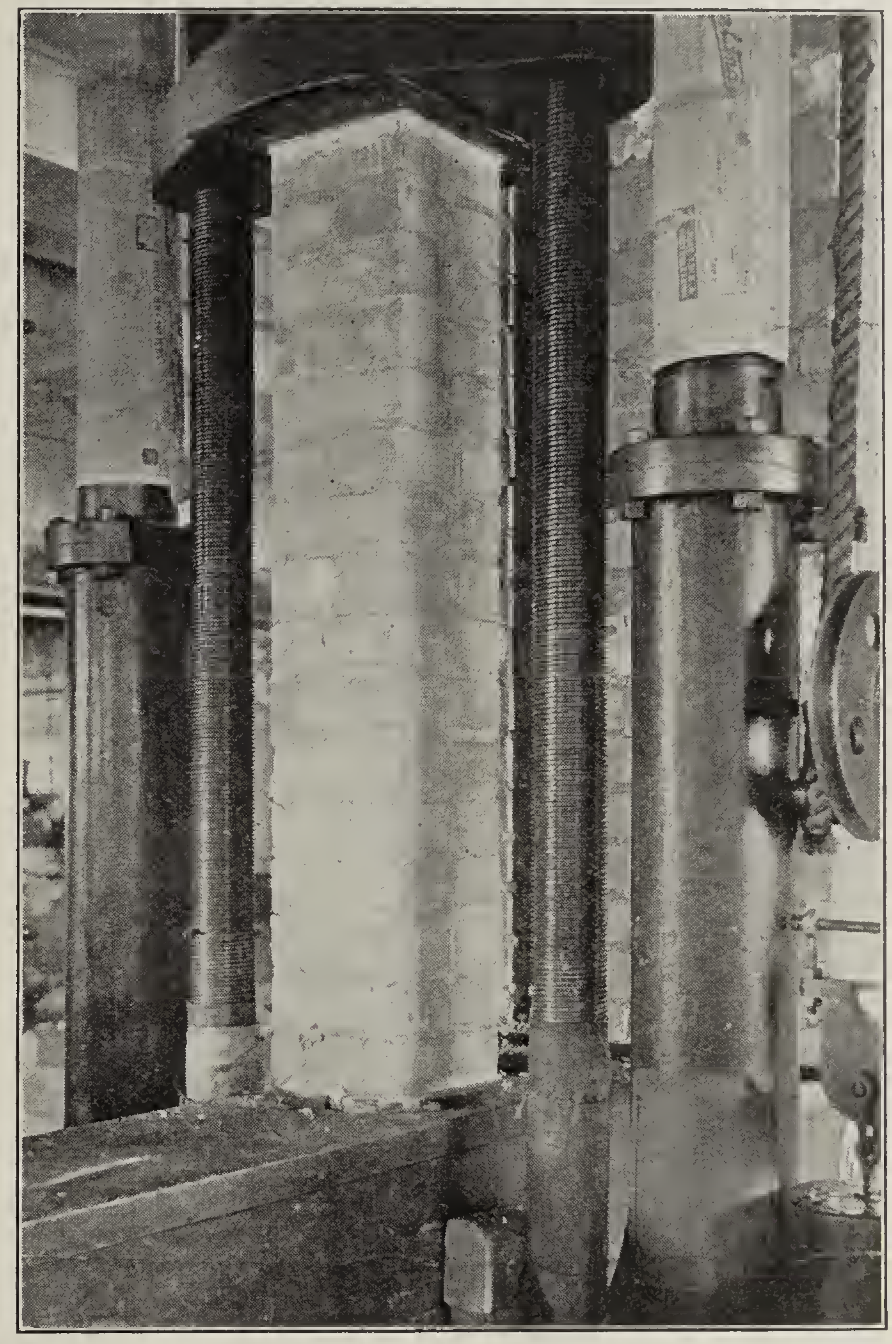
Absorption	Process	Center load (7″ between supports)	Area sq. in.	Crushing	Crushing lbs. per sq. in.
41 —14.2	Soft mud, rock and pallet yard	1,215	34.1	91,700	2,690
33 —13.8	Dry press	1,360	33.7	155,300	4,615
35 —17.9	Dry press	1,970	34.8	159,350	4,680
38 —11.53	Stiff mud setting off yard	1,945	31.4	113,600	3,610
11 —11.6	Stiff mud	1,980	44.5	115,690	4,515
62 —15.85	Hydrated lime	1,045	32.9	80,400	2,445
12 —15.7	Stiff mud, rock and pallet yard in summer.	1,470	34.4	122,600	3,565
61 —20.9	Stiff mud, rock and pallet yard in summer.	1,400	34.8	80,630	2,320
13 — 9.96	Soft mud	3,285	32.9	202,800	6,170
60 —18.85	Soft mud, rock and pallet yard	1,160	36.7	82,600	2,250
14 —10.4	Soft mud	1,895	34.5	106,300	3,080
58 —11.2	Hydrated process	470	34.2	128,260	3,750
15.2— 4.26	Stiff plastic wire cut..	4,100	33.1	202,800	6,135
57 —16.9	Soft mud, rock and pallet	1,160	34.9	91,400	2,620
16.2— 9.9	Stiff plastic wire cut dry press	2,050	33.9	120,520	3,555
56 —16.35	Soft mud, rock and pallet yard	1,180	34.2	98,510	2,875
17 — 6.1	Stiff plastic wire cut dry press	2,650	34.5	202,800	5,880
55 —22.4	Stiff mud	2,135	36.6	99,050	2,700
18 —12.95	Stiff plastic	1,945	31.3	46,200	1,476
54 —14.6	Soft mud, rock and pallet yard	1,055	33.6	119,000	3,540
20.2—12.56	Stiff mud	2,020	35.0	119,000	3,405
67 —24.8	Soft mud, rock and pallet	1,735	37.2	100,950	2,710
22 —14.52	Soft mud, rock and pallet yard	2,480	32.3	140,820	4,365
51 —21.9	Stiff mud setting off yard	2,785	35.8	107,470	3,000
23 — 9.1	Hydrated lime process pan mixer	540	33.6	105,800	3,110
50.1—14.85	Stiff mud setting off yard	3,740	33.0	158,600	4,815
46 —13.45	Stiff mud setting off yard	1,590	32.5	97,200	2,985
45 —14.65	Stiff mud setting off yard	1,045	25.6	71,700	2,010
43 —19.6	Stiff mud setting off yard	2,355	32.5	132,080	4,080
1 —10.3	Quick lime	1,005	32.6	97,900	3,000
73 — 7.1	Machine mixed sand with Portland cement.	1,100	34.0	82,250	2,420
2 — 6.4	Hydrated lime	1,610	23.2	154,200	4,640
71 —17.0	Stiff plastic wire cut..	3,070	35.2	169,480	4,820
3 —19.6	Dry press	1,620	34.0	194,600	5,720
68 —13.25	Hydrated lime, pan mixed	660	35.7	50,740	1,645
70 —15.81	Stiff plastic wire cut...	2,640	35.6	202,800	5,700
4.2—12.4	Dry press, stiff plastic wire cut	1,620	32.4	151,600	4,680
67 — 9.26	Hydrated lime, pan mill mixed	845	33.7	79,960	2,375
5 —19.3	Stiff plastic wire cut...	2,750	33.0	202,800	6,150
65 —16.3	Rock and pallet yard..	1,155	34.2	70,900	2,070
6 — 3.64	Plastic wire cut	5,320	32.7	202,800	6,215
21 — 9.15	Soft mud	2,220	32.6	126,940	3,890
7.1— 6.06	Stiff plastic wire cut...	3,760	33.9	202,800	5,980
7.2—18.5	Stiff plastic wire cut...	1,170	33.1	202,800	6,135
64.5—25.35	Stiff mud, stiff plastic dry press	1,210	34.6	157,040	4,530
64.4—12.68	Stiff mud, stiff plastic, dry press	1,935	35.1	202,800	5,780
64.5—19.0	Stiff mud, stiff plastic, dry press	1,770	34.4	93,700	2,720
64.6—20.0	Stiff mud, stiff plastic, dry press	1,150	32.8	37,300	1,145
8 —12.1	Dry press	1,980	34.1	181,240	5,320
63 —14.46	Dry press	1,200	34.3	117,160	3,420
10 —13.86	Dry press	1,975	33.0	165,900	5,020
24 —12.25	Quick lime process, pan mill mixed	730	35.5	80,970	2,275
25 —12.5	Soft mud, rock and pallet yard	1,440	34.2	100,800	2,950
27 —26.7	Soft mud, rock and pallet yard	1,335	33.1	89,400	2,700
30 —14.6	Dry press	2,140	34.2	183,500	5,370
42.2—23.35	Stiff mud setting off yard	1,710	33.8	105,950	3,130
42.1—15.4	Stiff mud setting off yard	1,760	33.6	126,000	3,750
31 —16.4	Dry press	2,300	34.4	202,800	5,900
32 —15.15	Dry press and stiff plastic wire cut	1,895	33.9	202,800	5,980
34 —15.6	Dry press	1,625	32.9	147,100	4.470
37 —12.8	Stiff mud setting off yard	1,500	34.4	139,000	4,040
40 —11.25	Soft mud setting off yard	1,050	34.4	80,840	2,350

walls would be called upon to take their full load. It was also decided to build the piers in both lime and cement mortar of the following mixtures:

Cement Mortar—1 part Portland cement, 3 parts of sand and one-fourth part of hydrated lime, all by bulk.

Lime Mortar—1 part lime to 3 parts of sand.

The piers were laid up during the month of June by an experienced bricklayer. They were 8⅝ inches square in plan and were built so as to represent a portion of an ordinary brick wall one brick thick bonded by headers every sixth course according to common practice in the city of Toronto. In constructing the piers an effort was made to obtain a class of workmanship neither better nor worse than would be expected from men of ordinary skill. The crushing strengths of individual bricks and of cubes of mortar six inches to a side, (the latter at an age of approximately three months) are as follows:



Type of Pier Built at University of Toronto for Testing Brick.

Modulus of rupture of individual bricks....	165 lbs. per sq. in.
Crushing strength of individual bricks.....	1,000 lbs. per sq. in.
Crushing strength of lime mortar..........	235 lbs. per sq. in.
Crushing strength of cement cubes........	1,835 lbs. per sq. in.

The piers were constructed on the 200,000 pound Richelie testing machine in the Strength of Materials Laboratory at the University of Toronto, under the direction of Peter Gillespie, Esq., associate professor of applied mechanics. Each pier was built on a plate of ¼ inch steel, 13 inches square as a base, and capped in plaster of Paris. In addition to the crushing strength of each pier, the amount of shortening due to load and the lateral deflection, if any, were obtained.

As mentioned before, the investigation was to determine, if possible, the relation between strength and slenderness and for that reason values of the ratio of length to diameter lying between 1.4 and 12.5 were provided for in the program by varying the length from 1 to 9 feet. A course of bricks including mortar joints averaged 3 inches in depth. Blue prints attached show details of how the piers were built. See diagram No. 1.

Referring to diagram No. 2 it will be noticed that points have been plotted for different ratios of $\frac{l}{d}$ and then a straight line formula has been plotted for the cement piers, namely:

$$p = 828 - 34\frac{l}{d}.$$ See straight line A.

Where p = ultimate pressure per sq. in.
l = length of pier in inches.
d = thickness of piers in inches.

A parabolic curve has also been plotted making the curve tangent at 1,000 lbs. (ultimate crushing strength of the individual brick) and the least crushing strength of pier No. 5 whose slenderness ratio is $\frac{l}{d} = 5.7$ and crushing strength per square inch of 570 pounds or p=1000—180 times the square root of 1 over d. See curve "B," diagram No. 2.

It will be noticed that the straight line A passes through the point plotted for pier No. 4, having a crushing value of 560 lbs. per sq. in. and the point plotted for pier No. 7 having a crushing value of 780 lbs. per sq. in.

The piers built in lime mortar will now be considered.

Referring to diagram No. 2, straight line C has been drawn through the point plotted for pier No. 14 having a crushing value of 550 lbs. per sq. in. and then an average point is taken between the points plotted for piers No. 12 and No. 13. The equation for this straight line is

$$p = .620 - 50\frac{l}{d}.$$

A parabolic curve, p=760—190 times the square root of 1 over d, has passed through the points plotted for piers No. 14 and No. 13.

through the points plotted for piers No. 14 and No. 13.

Johnson, Bryan, Turneaure, in Modern Framed Structures, Part III, suggest a parabolic equation for the strength of columns and by referring to diagram No. 2 it will be seen that it agrees well with tests.

Load, deformation curves have been plotted and from these the modulus of elasticity (E) of the masonry was found.

The area beneath the curve is a measure of the work done in producing failure and if this when done be divided by the volume of the pier, the result will be analogous to the common "coefficients of resilience." This is used to measure the capacity of the material or structure to resist shock, or

$$R = \frac{p^2}{2E}$$ where

R = is the ultimate resilience per unit of volume.
p = is strength of the material, and
E = is the modulus of elasticity.

For the twelve piers observed, this coefficient has been worked out in inch pounds per cubic foot, with the following as the values:

Pier	Mortar	Resistance to Shock
1	Cement	955 in. lbs. per cu. ft.
2	Cement	950 in. lbs. per cu. ft.
3	Cement	1,075 in. lbs. per cu. ft.
4	Cement	970 in. lbs. per cu. ft.
5	Cement	1,215 in. lbs. per cu. ft.
6	Cement	1,060 in. lbs. per cu. ft.
	Average	1,040 in. lbs. per cu. ft.
8	Lime	565 in. lbs. per cu. ft.
9	Lime	525 in. lbs. per cu. ft.
10	Lime	645 in. lbs. per cu. ft.
11	Lime	715 in. lbs. per cu. ft.
12	Lime	865 in. lbs. per cu. ft.
13	Lime	630 in. lbs. per cu. ft.
		Average 650

The resistance to shock is 60 per cent. greater where cement mortar is used than where lime mortar is employed.

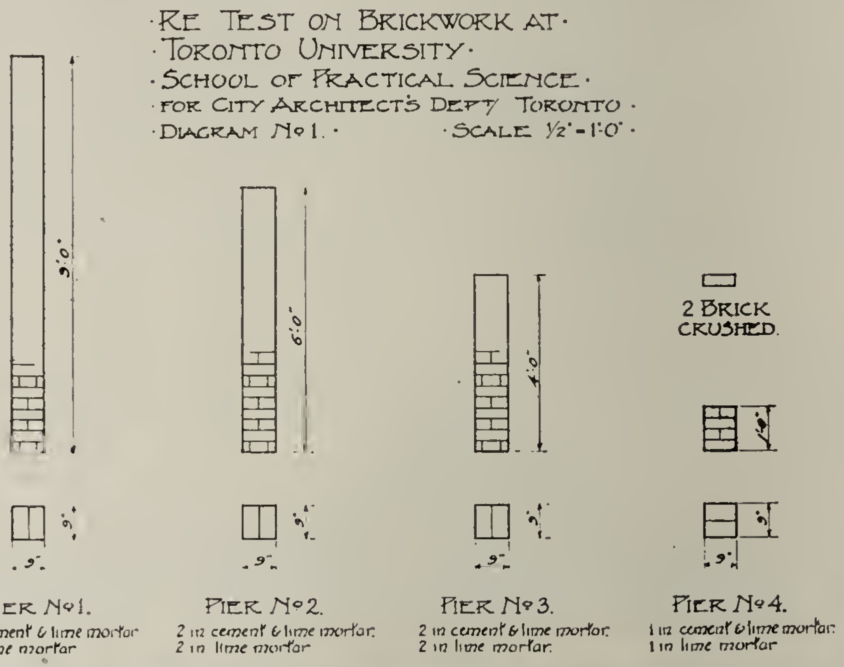
Crushing Strength. The following tables gives the observed values of the crushing strength for the fourteen piers tested:

Cement Mortar		Lime Mortar	
Pier	Strength	Pier	Strength
1	550 lbs. per sq. in.	8	340 lbs. per sq. in.
2	540 lbs. per sq. in.	9	350 lbs. per sq. in.
3	630 lbs. per sq. in.	10	420 lbs. per sq. in.
4	560 lbs. per sq. in.	11	410 lbs. per sq. in.
5	570 lbs. per sq. in.	12	340 lbs. per sq. in.
6	580 lbs. per sq. in.	13	300 lbs. per sq. in.
7	780 lbs. per sq. in.	14	550 lbs. per sq. in.

The average strength of the cement mortar series is nearly 60 per cent. greater than the average strength of the lime mortar series.

These tests were witnessed wholly or partially by Messrs. Sykes, Carter and Steen of the city architect's department, city of Toronto.

The test records follow:



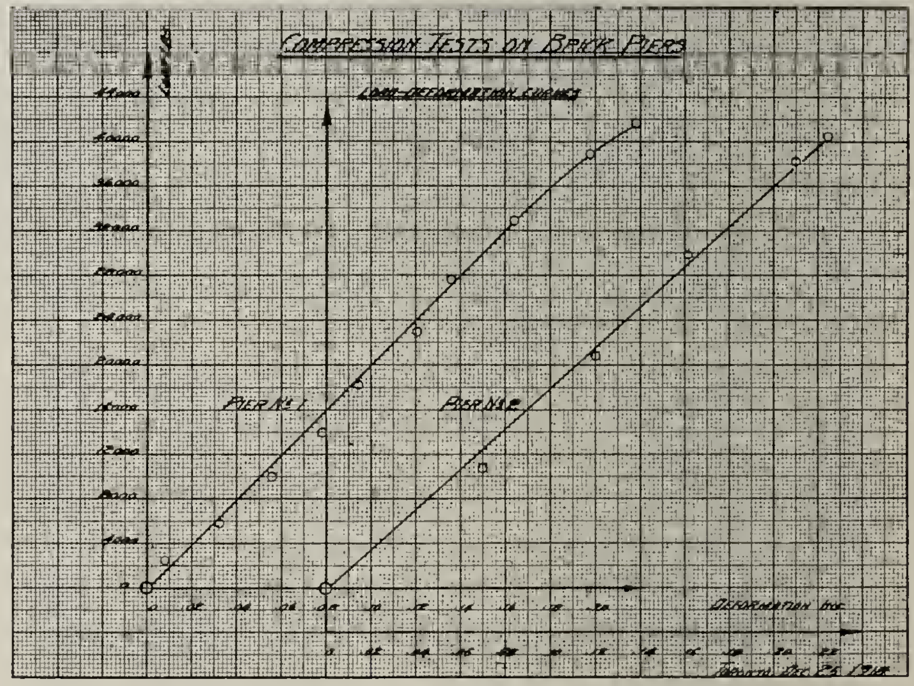


Chart on Piers No. 1 and No. 2.

Pier No. 1.

Tested Sept. 25, 1918.
Age, 105 days.
Height, 9 ft. ¼ in. = 36 courses.
Mortar, cement.
E = 294,000 lbs. per sq. in.
Strength = 79,600 lbs. per sq. ft. = 550 lbs. per sq. in.
l/d = 12.5.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	22,800	.120
2,500	.008	27,600	.134
5,800	.032	32,700	.163
10,000	.056	38,600	.196
13,800	.094	41,200	failed
18,200	.094		

Pier No. 2.

Tested, Sept. 28, 1918.
Age, 108 days.
Height, 9 ft. ¼ in. = 36 courses.
Mortar, cement.
E = 264,000 lbs. per sq. in.
Strength = 77,800 lbs. per sq. ft. = 540 lbs. per sq. in.
l/d = 12.5.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	29,400	.160
1,200	.000	38,000	.208
10,800	.068	40,200	failed

Pier No. 3.

Tested, Oct. 3, 1918.
Age, 108 days.
Height, 5 ft. 7½ in. = 22 courses.
Mortar, cement.
E = 330,000 lbs. per sq. in.
Strength = 91,000 lbs. per sq. ft. = 630 lbs. per sq. in.
l/d = 7.8.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	32,200	.087
4,600	.012	40,800	.114
14,200	.036	47,000	failed
24,600	.066		

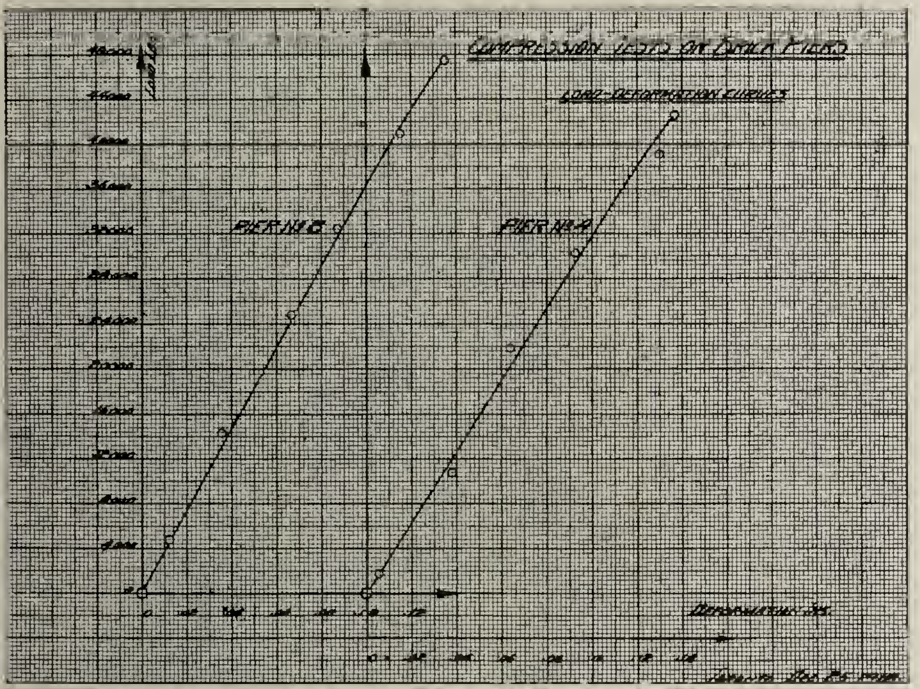


Chart on Piers No. 3 and No. 4.

Pier No. 4.

Tested, Oct. 7, 1918.
Age, 112 days.
Height, 5 ft. 7½ in. = 22 courses.
Mortar, cement.
E = 284,000 lbs. per sq. in.
Strength = 81,000 lbs. per sq. ft. = 560 lbs. per sq. in.
l/d = 7.8.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	29,800	.092
1,600	.005	38,600	.129
10,700	.037	41,800	failed
21,600	.063		

Pier No. 5.

Tested, Oct. 8, 1918.
Age, 112 days.
Height, 4 ft. 1 in. = 16 courses.
Mortar, cement.
E = 234,000 lbs. per sq. in.
Strength = 82,700 lbs. per sq. ft. = 570 lbs. per sq. in.
l/d = 5.7.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	31,000	.084
800	.000	37,200	.103
10,400	.032	42,600	failed
21,000	.059		

Pier No. 6.

Tested, Oct. 8, 1918.
Age, 112 days.
Height, 4 ft. 1 in. = 16 courses.
Mortar, cement.
E = 276,000 lbs. per sq. in.
Strength = 83,700 lbs. per sq. ft. = 580 lbs. per sq. in.
l/d = 5.7.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	30,000	.071
2,200	.005	38,000	.090
13,000	.033	43,200	failed
20,000	.045		

Pier No. 7.

Tested, Sept. 25, 1918.
Age, 107 days.
Height, 12⅛ in. = 4 courses.
Mortar, cement.
Crushing strength = 58,000 lbs. = 112,000 lbs. per sq. ft. = 780 lbs. per sq. in.
E was not determined.
l/d = 1.4.

Pier No. 8.

Tested, Sept. 26, 1918.
Age, 107 days.
Height, 9 ft. ⅛ in. = 36 courses.
Mortar, lime.
E = 215,000 lbs. per sq. in.
Strength = 49,200 lbs. per sq. ft. = 340 lbs. per sq. in.
l/d = 12.5.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	14,200	.091
1,600	.012	17,800	.118
7,200	.042	21,600	.150
12,000	.073	25,400	.207 failed

Pier No. 9.

Tested, Sept. 27, 1918.
Age, 108 days.
Height, 9 ft. = 36 courses.
Mortar, lime.
E = 208,000 lbs. per sq. in.
Strength = 50,000 lbs. per sq. ft. = 350 lbs. per sq. in.
l/d = 12.5.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	15,200	.106
2,000	.016	20,000	.144
9,400	.062	25,800	failed

Pier No. 10.

Tested, Oct. 1, 1918.
Age, 110 days.
Height, 5 ft. 7½ in. = 23 courses.
Mortar, lime.
E = 242,000 lbs. per sq. in.
Strength = 60,500 lbs. per sq. ft. = 420 lbs. per sq. in.
l/d = 7.8.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	21,800	.079
3,000	.012	26,500	.106
8,200	.030	31,200	failed
16,800	.054		

Pier No. 11.

Tested, Oct. 2, 1918.
Age, 111 days.
Height, 5 ft. 7½ in. = 23 courses.
Mortar, lime.
E = 214,000 lbs. per sq. in.
Strength = 59,300 lbs. per sq. ft. = 410 lbs. per sq. in.
l/d = 7.8.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	19,000	.078
4,600	.022	24,200	.105
10,600	.042	30,600	failed

Pier No. 12.

Tested, Sept. 21, 1918.
Age, 94 days.
Height, 4 ft. ¾ in. = 16 courses.
Mortar, lime.
E = 119,000 lbs. per sq. in.

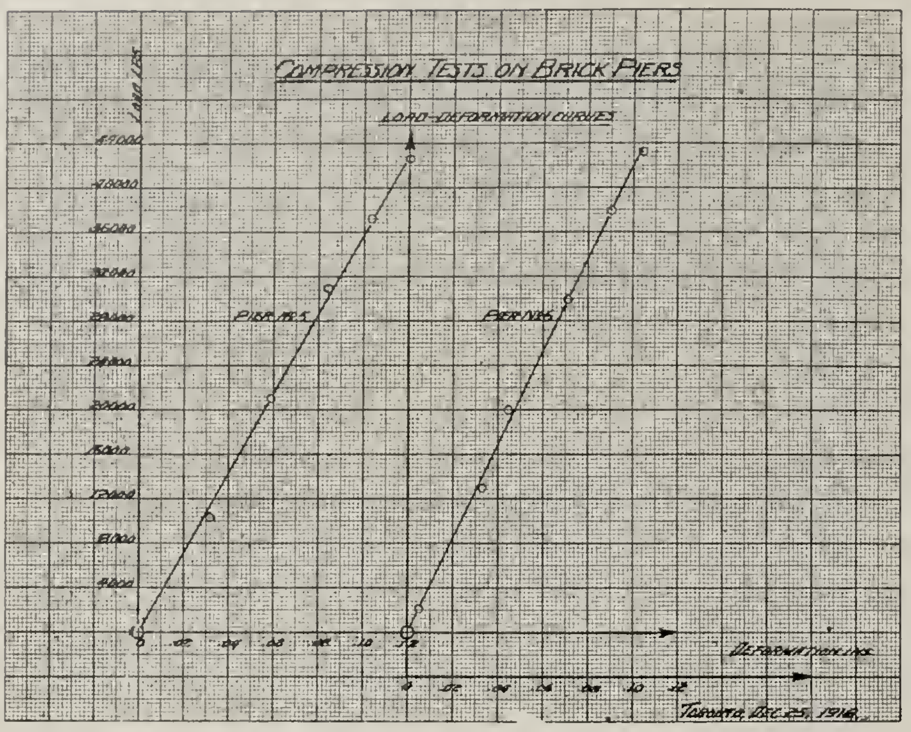
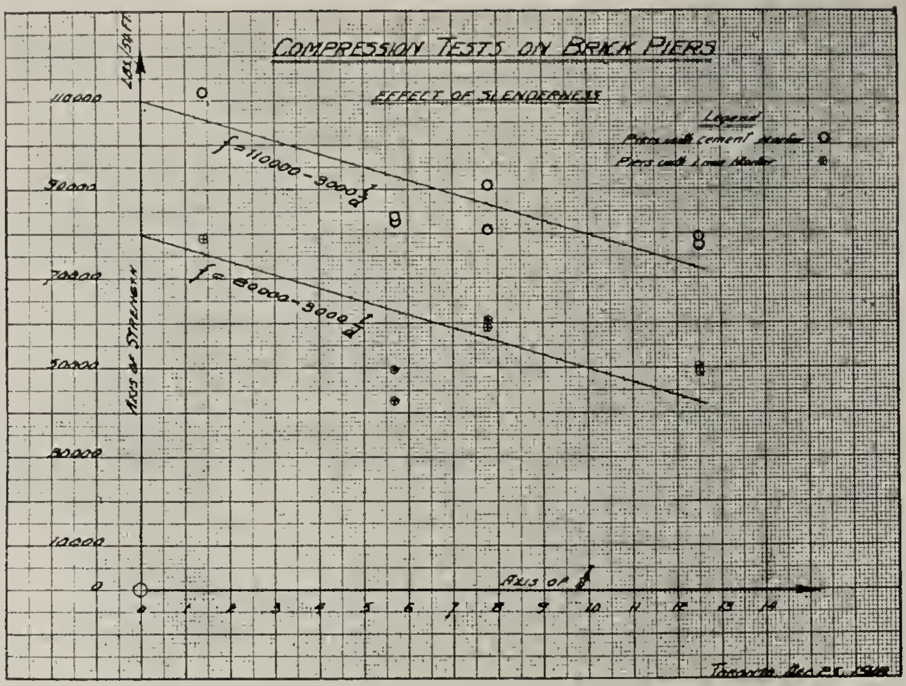


Chart on Piers No. 5 and No. 6.



Compression Tests Considering Effect of Slenderness.

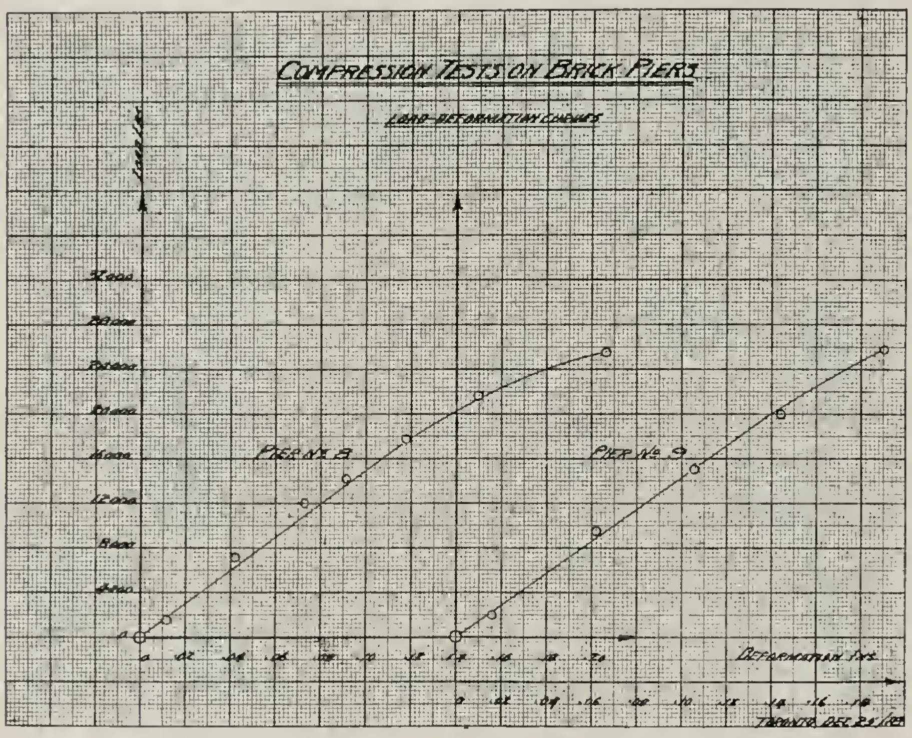


Chart on Piers No. 8 and No. 9.

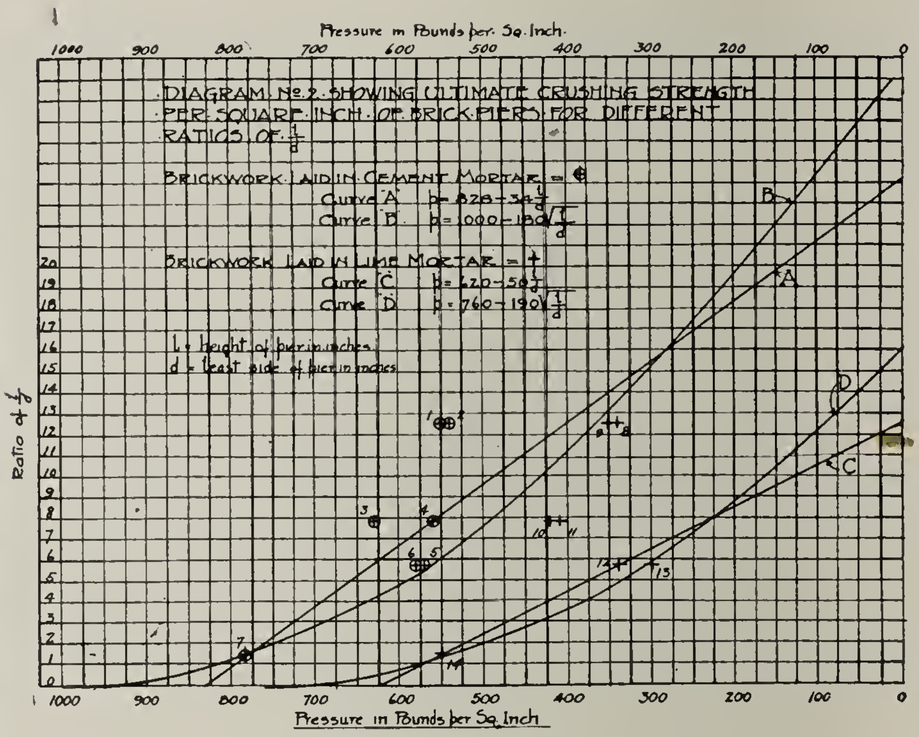


Diagram Showing Crushing Strength of Brick.

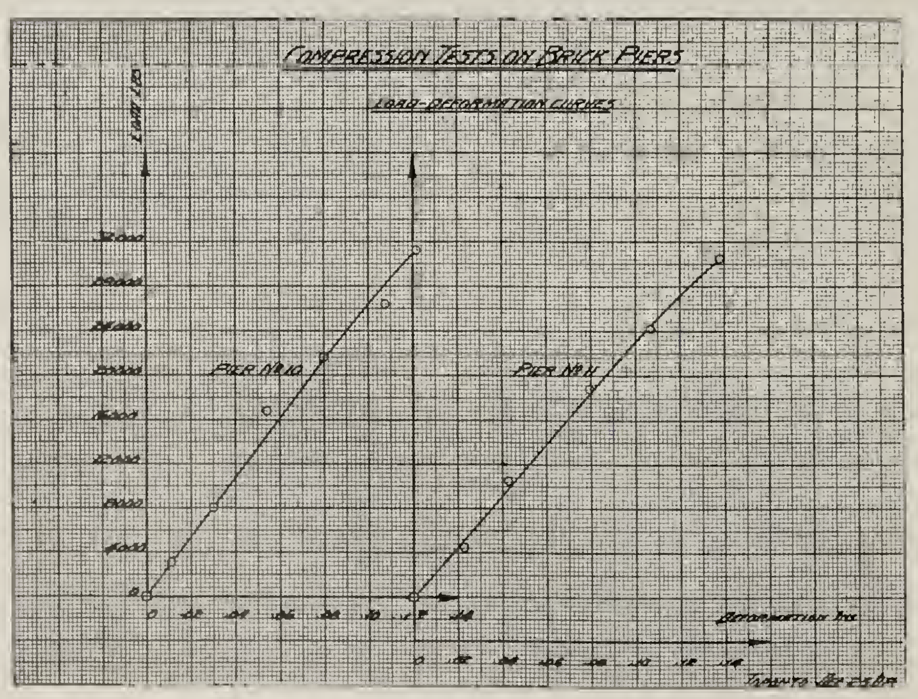


Chart on Piers No. 10 and 11.

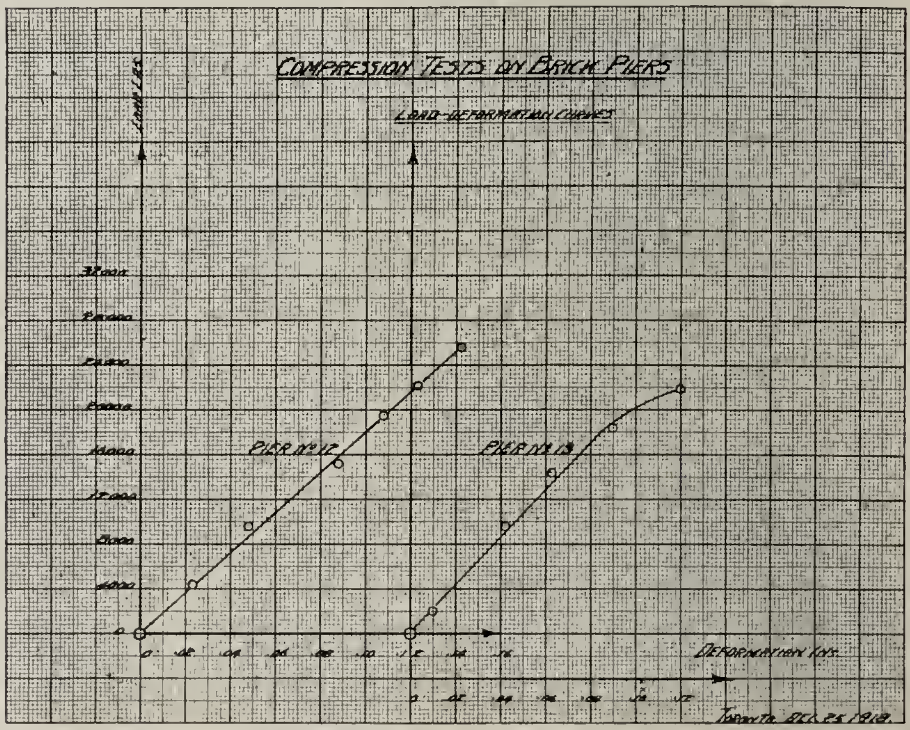


Chart on Piers Nos. 12 and 13.

Strength = 49,600 lbs. per sq. ft. = 340 lbs. per sq. in.
l/d = 5.6.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	19,600	.108
4,500	.023	22,200	.123
9,500	.048	25,600	failed
15,300	.088		

Pier No. 13.

Tested, Sept. 21, 1918.
Age, 94 days.
Height, 4 ft. ⅞ in. = 16 courses.
Mortar, lime.
E = 142,000 lbs. per. sq. in.
Strength = 24,700 lbs. per sq. ft. = 300 lbs. per sq. in.
l/d = 5.6.

Load lbs.	Deformation, ins.	Load lbs.	Deformation, ins.
000	.000	18,300	.089
2,000	.010	21,000	.119*
9,400	.042	22,000	failed
14,400	.063		

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*First cracks, 7th and 8th from bottom.

Pier No. 14.

Tested, Sept. 21, 1918.
Age, 95 days.
Height, 12⅛ in. = 4 courses.
Mortar, lime.
Crushing strength = 40,800 lbs. = 79,200 lbs. per sq. ft. = 550 lbs. per sq. in.
E was not determined.

Summary.

1. The strength of the strongest pier laid in cement mortar was 78 per cent. of the strength of the individual brick.
2. The strength of the strongest pier laid in lime mortar was 55 per cent. of the strength of the individual brick.
3. Brick masonry laid in cement mortar is about 50 per cent. more rigid and 60 stronger than that laid in lime mortar, and the resistance to shock is 60 per cent. greater in the former than the latter.
4. Longitudinal or vertical rupture through bonding courses occurred very frequently.
5. No appreciable shrinkage in height could be observed during the first month after construction. After this period, measurements were discontinued.
6. Lateral deflections under load were in most cases so small as to be almost incapable of measurement with a scale divided into 100th of an inch.
7. As a result of the tests, the following formulas for the strength of brick piers in lbs. per sq. in. are suggested. The former is for cement and the latter for lime masonry:

$$P = 828 - 34\frac{l}{d}$$

$$P = 620 - 50\frac{l}{d}$$

Some very valuable tests were made by the Department of Commerce, Technologic Papers of the Bureau of Standards, No. 111, Washington, D. C. The tests were made on large brick piers and a general survey was made of all previous tests conducted on the subject.

In having the tests made at the Toronto University I had in view trying to get up a curve or straight line that would be reasonably safe to be used for different ratios of $\frac{l}{d}$, but the few tests made of course would not warrant anything definite, but I hope this year to have a great number of brick piers tested so that a reasonable formula for brick work may be arrived at.

It is also the intention to have tile piers tested of the same lengths as those of the brick and in this way it will be possible to get at a comparison of the strength of tile piers and brick, and any other building material will be treated the same way so that the department may take brick as unit and the different materials may be considered either better or wcrse than brick.

Rudolph P. Miller, President Building Officials Conference: I am sure we have all enjoyed Mr. Pearse's paper, and will benefit greatly from it when we can study it a little later after it has been put in print. The paper shows considerable study and contains valuable information. It is difficult to fully appreciate such a paper, facts and figures, the results of tests and curves expressive of those results. Before taking up the discussion of the paper I shall ask you to give attention to another paper on brick work prepared for our joint session by an architect of Pittsburgh who will look at this subject from other angles and will undoubtedly bring out some interesting points. I have pleasure in introducing to you Mr. Edward Stotz, of Pittsburgh. (Applause.)

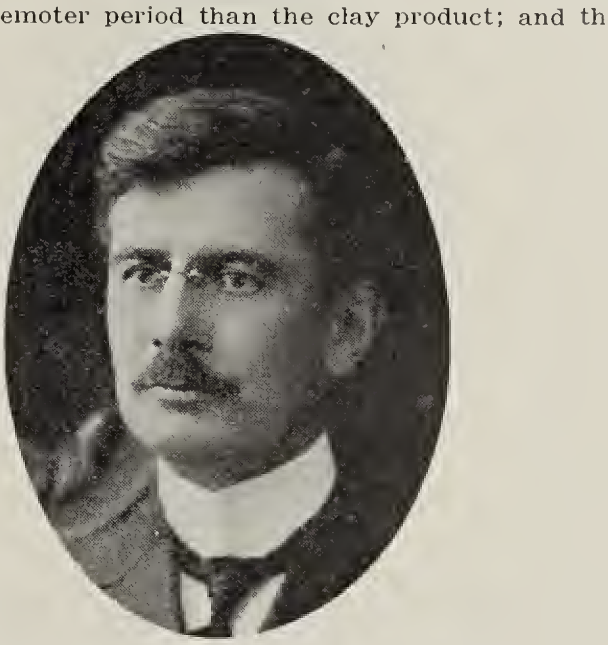
Edward Stotz, Pittsburgh: I would like to explain my reason for accepting the kind invitation to present this paper. It was simply to show you that I speak for the architect that we appreciate two phases of our professional life. That is the man who has charge of the enforcement of the law, he has a fine job. We know that because we keep him pretty busy sometimes. We know the brickmaker has quite a job by the time he gets his various shades of browns and greens and reds, and smooth brick, and the brick with ruffles, but the diemaker gets a whole lot of fun out of it. But in order to confine myself to my paper, after I had written it, I read it over to my wife, and she said: "You can read that any place," so you can take my intentions as the best part of it. (Applause.)

BRICK WORK.

EDWARD STOTZ, PITTSBURGH, PA.

Mr. President and Gentlemen of the Convention:

There is no building material, manufactured by man, that can be traced to a remoter period than the clay product; and there is no material that has served its purpose so well, through all the ages and down to the present day as clay, shaped, dried and burned and turned over to the mason as a unit, readily picked up by one hand, bedded and cemented to place with the trowel in the other.



W. W. Pearse, Toronto, Ont., Canada.

As the child delights to play in the moist and plastic earth, forming the mud pie as fancy dictates, and going from his play returns to find that the air and sun have dried and hardened his toy, so primitive man, readily turned to this most easy and alluring way of securing the little units with which he could build a habitation, in the treeless country that denied him the wood for the purpose.

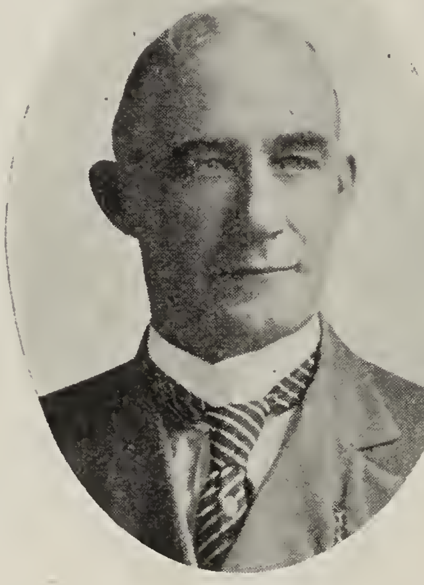
Nature furnished not only the materials, but all the elements, and even made bricks for him, until his dull and childish mind was impressed with the process often enough, to spur him on to emulation. You have seen the rectangular sections of sun dried hard and cohesive mud along the banks of a stream in the warm days of spring, after a freshet, and so the banks of the Nile were and are decorated with nature's bricks after each inundation, and noting the peculiar toughness of those pieces they were mixed with the roots of plants and other stringy vegetable matter, it is easy to understand that the Egyptians added these reinforcements to the clay, and becoming over zealous in the increase of the annual output, demanded too much of the laborers in the gathering of stubble, and thus precipitated the first recorded strike in the brick making business, all of which is duly recorded in the fifth chapter of Exodus. It is noted in passing, that this union won the fight, and even left the district for good, since when, its descendants have collared the bulk of the "Big Business" all over the world, so one might almost say that New York was started by the strike in the Pharoah Brick Company's plant in Egypt.

No section of the world that I know of, or have ever visited, but what has and does either make or use brick in some form, even though natures kindly material, stone, abounds. Aside from the settlers cabin with its field stone chimney (and even that eventually had a brick lined fireplace, if at all possible to procure the bricks), it is almost impossible to find a fixed habitation in the temperate zone that has not found at least a few bricks necessary to its proper completion.

For all universal and continued use of an object or material, there is a fundamental or basic reason, and in the case of brick work, it is so thoroughly known, understood, and accepted that it is a waste of energy and time to enumerate the good points and the range of usefulness, from Irish Confetti to the "Con man's" Gold Brick, is a sufficient monument to this most flexible and indespensable aid to the builders.

Brick work has always exerted a powerful influence on Architectural design and construction and many of the so called "styles" are due to the compulsory use of brick as a medium of external expression.

The ancients rather regarded the brick as only a means to an end, and a method of securing a mass of material in small units, capable of manufacture by slaves of both sexes and all ages, and quantity counted rather than quality, as Imperial Rome knew no "face brick" in its great monuments, and only backed up with brick the stones and marbles at that time available in profusion, and in the fabrication and setting of which, the Greek and other highly skilled artisans were employed. The humble dweller along the shores of the Nile builds today his house of sundried brick with mud or mortar, a kindly climate permitting. In these days of machinery, of beneficent care of the young, and reasonable working hours, one could wish that the Anti-Child Labor movement might have prevailed in those days, when from sunrise to dusk the children and the aged trod the clay with feet, and moulded and carried the mud under the whip of the Slave Driver until welcome death arrived to release them from their toil. Ancient architectural art had its tragedy and modern greed has not hesitated to make its sordid contribution, the old form of wrong was mostly perpetrated in the erection of the building, the modern by making conflagrations readily possible, and the falling walls a menace. Many of us were taught the principle of honesty in our childhood by that easily remembered rhyme: "For it is a sin if you only steal a pin." Let me add a second line equally true; For it is a sin, if you make a wall too thin..



D. Warren de Rosay, Warren, Pa.

If a man insists on having a combination lumber and brick yard welded together to the detriment of his neighbor, the test of his brick work should be that it will be perfectly safe after all the lumber is burned up. No other rules for computation are either sane or safe.

Earliest form of writing was with the stylus on tables of soft clay and records of Babylonian civilization are traced back three thousand years before the Christian Era, so that even Income Taxes were once computed on the humble brick and may be viewed even to this day.

Time will not suffice to even in the briefest manner touch upon the influence that brickwork had upon the development of architectural detail throughout northern Italy, Spain, The Netherlands, and all that part of Europe that is a natural clay reservoir, and where stone was scarce and hard to work, and to this day its influence is felt in our work in America. With the wonderful mechanical devices, the aids of chemistry, and the demand for variety and the utilization of clays in the several districts, we have evolved such an array of color and texture plus a skill in composition as to enable the production of effects, pleasing and subtle as tapestry, as well as garishness and lack of repose to the extent in some cases as to cause one to wish that suitable color control laws might be formulated and enforced, as well as the rudiments of design suited for proper expression in brick. The practical utility of the brick is still unimpaired, its ancient honorable lineage as a help to civilization and progress is unquestioned, and the character and quality structurally has been carried to such a point as to perhaps verge in some localities at least, upon unnecessary waste and to induce in some directions departure from the laws of safe building, as the better the brick, the thinner some folks think walls should be built.

While this may seem paradoxical and an over statement of fact, it may not be out of order to call attention to a few facts that govern construction, and the wrong application of which would be not infrequent, if judicious laws were not enforced for their control.

In choosing material having so high bearing power, the natural, impulse is to reduce areas so as to utilize all of the tensile strength, but the excess value in the material beyond a safe margin of what practice finds necessary to conform with design in the mass, is actually wasted.

Now to produce bricks requiring an expensive process of manufacture, including long continued high temperatures in kiln, and great weight in the densely compacted structure increases expense of manufacture, transportation and dead load, without decreasing in ordinary work the limitations upon the length, height, and thickness that a wall for a given purpose may be built.

You then have a mass of material of an order higher in one direction than you can possibly utilize, a five-ton load on an area capable of carrying ten tons, but which for very obvious reasons you cannot utilize.

To meet this situation without returning to the older methods or of the production of a strictly soft porous brick, it would seem that the perforated brick, should have its values proven beyond question by good authorities, preferably the U. S. Bureau of Standards as by the use of suitable perforated brick at least considerable transportation and dead weight on the foundations might be saved and still leave ample factors of safety for utilizing the full bearing power of a wall of a given thickness, which in most cases has been, with much wisdom arbitrarily fixed by laws. Compared with Europe, we use thinner walls, but a very superior grade of brick, and we have, to a great degree, ignored the insulating qualities of hollow walls and more porous materials for our backings.

I certainly would not advocate poor or really under burned brick, but I do believe that normally we have a wasted increment structurally in many of our brick walls, and as we grow older as a Nation, must learn to save intelligently of fuel, and in other directions as well, and the ancient and honorable brick may be subjected to a "Hooverizing" process, without impairing its usefulness. Let us not be influenced too much by the high tensile strength of the material and consider savings as legitimate by the thinning process, all natural laws is against it and regardless of all high spun theories, the brick has its limitations and after all a 9-inch wall is not fit for any bearing purposes and certainly should not be permitted in a parapet wall in any climate where Jack Frost rules.

Notwithstanding all the substitutes and new modes of construction that have come into more or less general use, the little old brick is still with us, good to walk on, good to look at, a fine burden bearer, the ancient friend of man, and as attested by many who have been at both ends of the line, a mighty handy thing to throw. (Applause.)

General Discussion.

Secretary Randall: I would just say for the benefit of those who may have heard Mr. Hammond's remark a while ago of "fine him." We have an unwritten law in our organization that a man who refers to Pharaoh or the Children of Israel shall be fined $5.00. However, I think I am safe in saying to Mr. Stotz that his fine is remitted. (Laughter.)

Mr. Stotz (taking roll of bills out of pocket): I pay my way, but I did not earn this money last year. (Laughter.)

Secretary Randall: I want to perform a little ceremony here. I want to decorate Mr. Stotz with one of our badges. I regret exceedingly that I did not know you were having a session yesterday for I would have liked to visit you and invited you to participate in our annual banquet which took place last night. I trust each of you before you leave the room will let the assistant secretary take your names and give you a little token of this meeting. Our president will tell you how glad we are to have you with us, and I hope much good will result from you meeting with us.

President Miller: On behalf of the Building Officials Conference I want to say in reply to what Mr. Randall has said that it is not only a pleasure for our Conference to meet with this Association, but I think it is going to be of mutual benefit and profit. We are not so large an organization, the Building Officials Conference, I am sorry to say, is not widely known throughout the country, but we claim that those who know anything about the Conference and will come to our meetings annually as these gentlemen have been doing, will find that our members are men who are interested in their work, and not merely in holding their jobs.

This paper of Mr. Stotz, I think, has brought out some very interesting suggestions, particularly that one about the use of brick that are perhaps not up to the full standard of what is today considered the standard of the brick and the saving of the material by possibly making it hollow. The wall thickness is, as he intimates, generally fixed by law. Minimum wall thicknesses are fixed largely because of certain elements that do not appear; that are necessarily in the dark —such as strength of brick work, the lateral strength of the wall must be capable of standing up and carrying its load. That has been brought out in a large measure by the paper that has been read by Mr. Price on behalf of Mr. Pearse. There is another distinct advantage in the minimum thickness of the wall. That is its resistance to fire and the spread of fire. The importance of that question of fire prevention has come to the forefront in recent years. We begin to realize what an enormous waste there has been in our social life due to the fact that we have been negligent about the prevention of fires. From studies of the matter it appears that a very large proportion of the fires that do occur are preventable fires. I believe from the program of the National Brick Manufacturers' Association that Mr. Hammond, first vice-president, was to open the discussion on Mr. Pearse's paper. I will ask Mr. Hammond to speak now, if he will be good enough to do so.

A Brick Man's Viewpoint.

Wm. K. Hammond: Mr. President and gentlemen, I listened with all the admiration which an ignorant layman feels for the exploitation of a scientific number, to Mr. Pearse's paper, and I am reminded of an incident which happened on the North River a great many years ago. A very celebrated French statesman came over here on his yacht, and he sailed up the North River with his yacht, and near Stony Point he ran into a sloop loaded with brick and sunk it. He immediately applied a process of law—that is, the man who owned the sloop and the brick. The French consul took charge of the matter. The case was tried at Kingston and an old fashioned lawyer appeared for the plaintiff. It was tried before a jury—unusual, for such cases usually go before the United States Court—and the jury was composed of farmers and the counsel for the Frenchman had a very able lawyer, and he talked about the starboard and the port side of the yacht and other nautical terms. The old fashioned lawyer for the plaintiff got up and said: "Fellow citizens, the very learned counsel from New York talks about port and starboard of that yacht, and says this sloop could have kept to the port side or starboard of that yacht. Now what do we in this country know about port and starboard. All we know is just gee and haw." (Laughter.) So that is the way I feel when called on to discuss this very able paper on brick work. All I know is "gee and haw."

I am reminded of an old friend of mine, George Manchester, who has gone to that land of happiness and rest where all good brick men hope to go. He would say to me: "What have you got, what difference does it make what kind of a job you have got, for a brick is a brick."

I am quite sure we are edified and instructed by Mr. Price's paper. He speaks of a thousand pounds. Our experience has been that we do not need a crushing strength of a thousand pounds, but if a thousand pounds is enough, what is the use of having any more? And this phase comes up again, that a brick is a brick and if once properly set up in the wall, and the wall properly seasoned—I don't know that I have very often seen a wall fall from a crushing load, which was put on it. Now, of course, I want them to use all the brick they can in building that wall, as Mr. Price says, make them thick enough.

Then we come to Mr. Stotz's paper and I very much admire his intelligence and his sagacity evidenced by the fact that he submitted his paper to his wife. That was nothing but the wisdom of the modern man. He knows that the woman who loved him, looked at him with all the admiration of the world and when she said, "You can read that paper anywhere," she struck it. Because I submit I have never heard, as a brickmaker, a paper on brick that suited me quite as much as this paper. If I was going to have any improvements made I would look for Mr. Stotz, because I want an architect that displays the common sense of expressing the situation as he does. I commend the city of Pittsburgh for keeping such a good man. I do not know how successful he is, but I hope he will go on with his success until he will be at the very zenith of his profession.

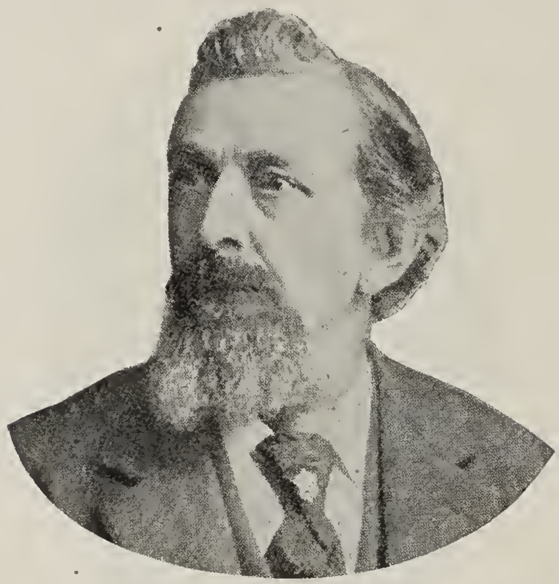
We are most happy to greet Mr. Rudolph Miller, of great fame in the Empire City, and I hope that when Mr. Miller gets back on his own ground looking toward building codes and reforming some of the iniquities which we suffer under there, that he will feel encouraged to keep up his good work. Perhaps no man is more responsible for the good things in the building code of the city of New York than the gentleman who sits before you. When he gathers the inspiration which comes to him and finds that the city of Pittsburgh has an architect that can talk as well as Mr. Stotz, he can say "so and so has buildings such as New York and they have soft brick laid in some places which is much more economical in its use and just as good in some places." I don't know that I should go on talking because our secretary has admonished us that time is a factor, so I think I had better stop. I thank you very much. (Applause.)

Rudolph P. Miller, President Building Officials Conference, New York, N. Y.

Good Building Codes Essential.

President Miller: Those of us who are interested particularly in the admiration of the law are endeavoring to find out, not merely from the scientific people, what is the desired and the proper thing to put into the law. I do not know that our members will altogether agree with some of the views that have been expressed. The Building Officials naturally look at this from another standpoint. They hold their object is not in conflict with the object of the manufacturers because we think we are all looking for good and safe work, and the protection of the public. I am going to ask these members of the Building Officials Conference, if they want to say anything on this subject, to do so briefly, for we do not want to overstep our time. The members of the National Brick Manufacturers have more business to attend to, but we will be glad to hear from any other member of the Conference who wish to say anything on this subject.

John W. Moore: Long Island City: I will simply say this, I have never known any building to fall from brick crushing but I have found this experience that the brick after two or three years, if very soft and placed on the outside, will split and fall off and the walls become weak and cause the people who own them to make repairs. Personally, I am opposed to a pale brick and the light hard brick. They have a brick in New York called a light hard brick. I want a good hard brick. The brick industry is going back, it has not kept pace with other materials used in construction work. I refer particularly to concrete. It is the fault of the bricklayer, the laborer and the brick manufacturer. When you people manufacture your brick so they will compete with concrete, when the bricklayer today gets seven dollars a day, and at the end of the week probably has ten or twelve days counted, when he gets his price down to the right figure, he will probably get seventeen or eighteen dollars a week, and probably be working all the time and concrete will not come into competition. I have no doubt about it that the brick and steel building is as good as the concrete building. I think the general building public would rather see a brick building. I have no interest in it, but the concrete building has been cheaper than the brick building and it is just as good. I advise you people to get your brick down to a point where you will be able to compete with concrete. I like brick work and where I can I give them the advantage and do it fairly. I would like to see you people get your prices down so that you can compete with concrete. It may be the fault is with your manufacture. I heard one of our members saying yesterday "They make brick today, the same as they did five hundred years ago. Every other business you go into there has been improvement, but in the brick business there has been no improvement in making. They are making them the same way they did years ago." He suggested the manner of handling and rehandling and rehandling again, and he suggested a manner of handling in larger blocks or units and reducing the cost that way. I really did not expect to speak at any length, I just wanted to bring out these thoughts.



John T. Hummert, Quincy, Ill.

President Miller: I think our secretary, Mr. Fred W. Lumis, has something special to say along this line.

MORE BRICKWORK.

FRED W. LUMIS, BUILDING COMMISSIONER, SPRINGFIELD, MASS.

For years I have believed in and preached the gospel of good brickwork. But I sometimes wonder if it will not some day become a lost art. Even its friends seem to be doing everything possible to make its use unpopular.

The old yards scattered over New England, where excellent bricks were formerly made by hand, and made very inexpensively—have one after another been abandoned, or their interests merged with other larger and more monopolistic enterprises. Costs of operation have increased, and perhaps also profits. The owner of the small yard was satisfied with just a living—sometimes his returns denied him even that. The output was of a high order particularly when the moulds were water-struck instead of sand-struck.

Examples of water-struck brick—more than a century old, are still to be found, as clean and beautiful as when first built. If it an interest, and thereby a richness that is refreshing to look upon. the old methods.

Many of you are familiar with the old water-struck bricks, which I have mentioned. In sizes they are rather smaller than the standard bricks of today. In New England, where nearly all brick clays contain iron oxide, these bricks, when burned, varied in color from a bright cherry red to a rich old mahogany color. They have a smooth impervious surface that keeps bright and clean under the most trying conditions of climate and environment.

They also vary somewhat in general size and shape, and when laid in the wall with a generous mortar joint this variation added an interest, and thereby a richness that is refreshing to look upon.

The oldest, most interesting and beautiful building in the campus at Brown University at Providence, Rhode Island, is built of these same water-struck brick. In comparison most of the adjacent buildings have an alien and disturbing effect.

Many existing buildings in the older cities of the east are built of water-struck brick. Concord, New Hampshire, abounds with good examples.

I believe that for domestic and institutional work, these bricks —all things considered, have never been excelled. Why are they not commonly made today? Is the process too expensive?

In my own city of Springfield, Massachusetts—except to comply with the restrictions in the so-called fire district—very few private dwellings are being built of bricks. I would like to see their use revived, because a brick house has many advantages not possessed by a wooden one. Why are not more brick houses built? There can be but one answer, and that is that they cost too much. Owners, architects, and builders have this item of cost to contend with. To overcome it, they follow the line of least resistance, and use inartistic, but scientific concrete, and the ubiquitous and abominable substitute known as "cement blocks." Why men go from Massachusetts to Alabama, and to Michigan, yes, even to Oregon and Washington, thirty-five hundred miles away, to get lumber with which to build their homes, when just below the foundations of nearly every house lies an inexhaustible supply of good brick clay—is difficult to explain.

The wages of brick layers have increased somewhat since America was discovered. At that time in England, a good brick layer, working long hours, received the equivalent of twelve cents a day. Now he gets that amount every ten minutes. But times have changed and wages of bricklayers have increased—and so for that matter have wages for all kinds of productive labor. They move upward with the other costs of living. Have big wages changed the fashion or decreased the demand for brick houses? It may be that the theory of restricted apprenticeships is fundamentally wrong—inasmuch as it keeps many a bright young man out of the business.

In these times, when no one really learns a craft or trade, it might be well to set the standard high and license bricklayers—as plumbers and electricians are now licensed—in Massachusetts, when they have attained that degree of understanding and skill that may be prescribed and established by law.

I know a number of old bricklayers who are veritable craftsmen in their line of work, but I know very few apprentices or young men who are qualified to take their places.

A thorough application of the spirit of co-operation among all the allied interests will go far toward creating a popular demand, and in reasonably satisfying that demand.

The brickmakers, the architects, the owners, the builders and the bricklayers should get together and unite in a crusade, with zeal and enthusiasm, and inscribe on their banners—more bricks, more bricklayers, more brickwork, more brick houses—and better houses. (Applause.)

Walter R. Forbush, Newton, Mass.: Mr. President and gentlemen, like Mr. Lumis I am a believer in brick work and I feel in the way as he does that while a great progress has been made in the manufacture of brick, yet in some way they have gone back. I live in a residential town, we have very little manufacturing interests there. We have built a number of very high class residences and we use more and more of brick for external walls all the time. We use quite a number of water struck brick, which we get from New Hampshire. I rise to tell you about a building in New Hampshire, which I think was the most beautiful piece of brick work I ever saw in my life. The building stands today 150 or 200 years old. The brick are hand mold, laid flush and pointed. This is a very interesting house, the wall paper on the walls was made by hand, and it was in sheets two feet square. All the hardware is hand work, it is really a gem of a house. But the brick work is what you would be interested in. I have never seen anything to equal it in colors. I would not attempt to describe it, it is the only one of the kind I have ever seen. It would seem to me in not being able to reproduce that building today, that we have lost something.

President Miller: I hope the brick manufacturers will understand that the criticism made and suggestions offered by our members have been with the kindliest intentions. The thought that it suggested in my mind is merely this: that the interests of any industry lies not only in its own immediate work. Let me apply it to your own industry, the manufacture of brick. Your interest lies not particularly as we see it, not altogether in the manufacture of brick, you may make an excellent brick, and if it is improperly laid it will become discredited. That has been the case with so many materials. I have noticed it in other industries. In the starting up of any industry where too much was claimed for the material, before they knew what they could actually do with it, and it lost out in the end, for it was soon discredited, because of trying to do something with it, that the material was not adapted for. I want to merely say, that we are offering these criticisms and suggestions and say that in the brick work, the question of laying it and putting it together is really a part of your work and consideration. Perhaps our members do not know, as I do, for I have had the benefit of knowing from the proceedings of your previous meetings, that you have committees at work on some of these questions and I think Secretary Randall would like to say a few words in closing up this matter on the criticisms that have been made.

The Stability of Building Brick.

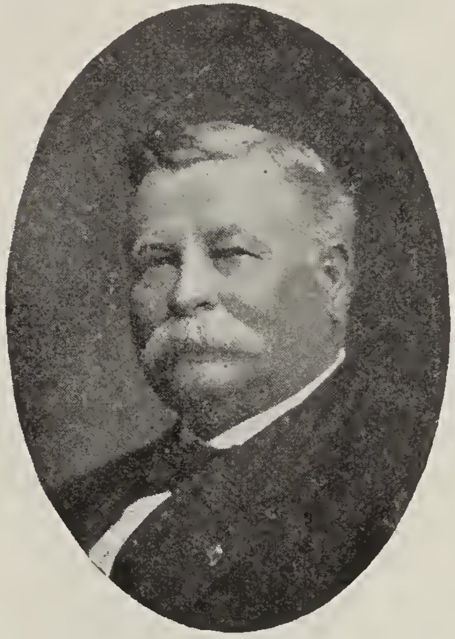
Secretary Randall: Mr. President and gentlemen, I want to answer two or three statements that your members may know more about these matters. We are glad to have these suggestions and criticisms. Criticisms of a friendly sort are always helpful. I thank you for giving us some data that will really be of interest and help to us. I want to answer Mr. Moore in regard to the progress of the industry. He is in error, when he says that the brick industry is not progressing, no industry in the world has made more progress than that of the manufacture of brick during the past decade. We are going from small plants to large plants and that spells industrial success. You cannot go on in this day and age producing in small quantities and in a small way, materials needed in large quantities and meet the demands of the times, so the tendency of our industry has been to concentrate and consolidate, so that larger plants that may be operated more economically have been established to the disadvantage of the small plants. For many years New Englanders made water struck brick—and they are still made in a limited way—but there is another brick on the market called rough texture brick, which is just as beautiful because it gives a wider range of color shades than the water struck brick and they can be made by the million, whereas the water struck brick were made by the thousand. There are no more beautiful homes built in the world than those of brick. They are without exception better in every way from the viewpoint of beauty of architecture than any other material. And that is why we feel absolutely safe in the future of our industry. So long as we can produce such an excellent material and it makes such beautiful buildings which meet every requirement of economy and beauty and fire resistance.

The larger plant is not exactly a monopolistic element, it is simply the evolution of the industry going from the smaller things to the larger ones.

The cost of the brick work never did depend on the cost of brick. There is no material in the world that has been so universally cheap as brick. In brick construction it is the bricklayer that has added the cost to brick architecture in recent years. The gentleman touched upon one very vital point in that connection. This is the thing which has touched us as an industry and if you gentlemen can advise some means by which the American boy can learn the trade without interference from trade unions, he will mark a great step in the advance of the industry. We have tried to establish schools of bricklaying, and there are schools for bricklaying in some cities and they have been very helpful. The ultimate consumer is the man who will profit by the work we are doing along these lines. It is the cost of the bricklayer and not the cost of the brick that increases the cost of structural work. I will leave it to others of our members who care to do so to speak on this subject, but I wanted to say what I have in this connection in order to set you right. We are glad to have you with us, we know it will help us to have such suggestions. We all have the same object in view, and that is to enable the home builder to have the best material and to own his own home.

C. J. Weber, Chicago, Ill.: I want to correct few impressions that have been given here as to a light brick being a soft brick. There are some places in the country where a light brick is a hard brick. Another thing I want to correct is a statement that a brick is used in which the crushing strength was 1,000 pounds to the square inch. In the Chicago district the crushing strength is 4,000 pounds, and the crushing strength of concrete is 1,800. Our brick will stand 4,000 pounds, and I do not think our brick are above the average. I think most brick throughout the country will stand a higher strength than that. Mortar gets harder day by day, it is a slower process than concrete. Concrete gets its hardening process quicker, but mortar gets it slower. A three months' test is no real test if lime mortar is compared with concrete.

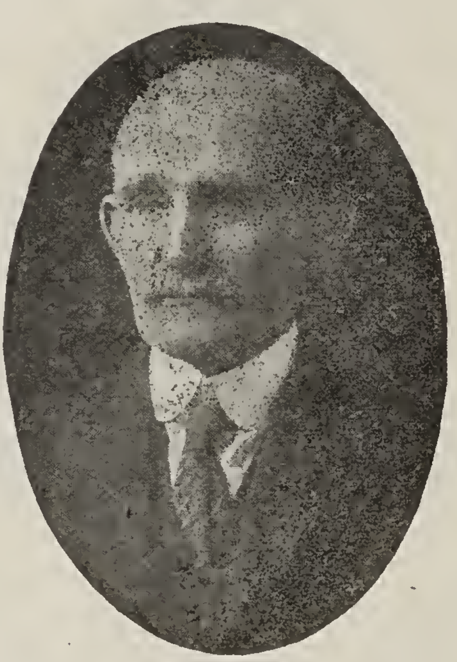
Another impression that should be corrected is that we make brick the same as they did five hundred years ago and the brick are not as good. Our system of manufacture has changed in the last twenty years. We only touch our brick twice by hand in the whole process of manufacture, and our brick are just as good as those made forty or fifty years ago, and where we used to make 25,000 brick per day on the plant we now make 350,000 brick on the plant we have now. I also want to tell you that brick is the lowest price material on the market today for its weight. The reason the bricklayer gets the big money, I think, is that everybody realizes a brick building is so much better, the brickman's prices so cheap, the bricklayer gets his money, and they keep on using brick and the reason the concrete mixer don't get his money is they could not get it. They have to compete with brick. In order to get a good concrete building, the main strength is in the reinforcement. It is proven now that electrolysis and water getting into the reinforcement expands it and causes the concrete to crack. We don't fear now very much competition, because concrete building will be short lived, and it will not be very long until the ultimate consumer having a concrete building where there is much electricity in the ground will see the cracks in the concrete. (Applause.)


George O. Berry, Columbus, Ga.

Brickmaking Not So Simple as it Appears.

Marion W. Blair, Thornton, W. Va.: I wish to supplement Mr. Randall's remarks a little. It has been a matter of regret with me that so many users judge the brick industry by the brick itself; they buy the brick and put them in a building but never take the trouble to go back of the brick to see how it is made, or the material of which it is made. If the users of the brick were a little bit more familiar with some things concerning the manufacture of brick, and it doesn't take long to find out on a brick plant. For instance, it might be shown that the brick industry is a business that requires considerable skill and considerable knowledge of a great many different things; take the user through a modern brick plant and show him the raw material, and point out the complexities in getting a proper mixture, owing to the different strata in the clay bank; show him the grinding machinery and the difficulty in getting the proper screening to get certain desired results as to the texture of the brick; show him all the processes of the machine room, and point out the care with which the brick have to be handled to prevent disfiguration; explain the drying process, the temperature regulation of the dryer, and the care that must be taken to prevent cracking. I have seen 35 per cent. or 40 per cent. dryer loss.

Skill and painstaking labor go into the making of a brick despite the idea of a great many people that anyone can make a brick and get away with it. A great many men have gone into the brick business on that theory. I can point out along almost any railroad abandoned plants, kilns fallen down and moss-grown, and if you go into the question you will find the plants were started by men who thought any one could start a brick plant and make money. They do not go into their costs; they sell brick at $7.00 because Tom Jones sells them at that price, and not because they want a legitimate profit on their business over and beyond what the brick cost. In many communities are beautiful brick buildings but no brick plant in operation for the reason that with every thousand brick went a little bit of capital stock which was built into the walls with the brick. That is the reason it has been necessary to combine brick plants and go into the business on a scientific basis, a business basis where the management investigates and knows what the material costs and instead of selling at a losing figure or cutting prices, or selling at a price that can be had in some other community, sell at a profit. In order to make a success of the business we must not only make brick, we must also make a little money along with it, or the brick business will die. In buying a brick, the buyer sees four or six pounds of burned material only. He doesn't see the handling of the material he has paid for but doesn't get. He doesn't see the ton of water that was handled, pumped up into every thousand brick, and then taken out again by process of manufacture, but it costs money to handle that ton twice. The buyer doesn't see the various other materials that have gone into the brick. He does not see the waste that goes on outside of the brick plant even. A bricklayer will pick up a brick to fit into a corner and if the first brick doesn't fit he often breaks fifteen or twenty brick to get a piece to fit. All that adds to the cost of a building. The user and the architect and the designer don't see all these things. If the user would take time to visit a brick plant in his own vicinity, get acquainted with the brickmakers and understand what it takes to make a brick, he would have a better understanding of the material that he is using and possibly more respect for it.


A. V. Sturgeon, Suffolk, Va.

Brick work and brick buildings are expensive, we admit it. But it is like any other material of merit, which costs more, but it is worth it. The gentlemen from New England in the last few years have been in sight of such fires as the one at Salem, Mass., then there was the fire at Atlanta, Ga., at Chicago, San Francisco and other cities, all of which were stopped by a brick wall or by the brick buildings. Deduct cost of the brick buildings from the cost of such fires and the difference will pay the brick manufacturers a handsome profit for a number of years. If the city of Denver can prevent building anything but a brick building, if Toronto can prevent the building of anything but a brick building, any city in the world can do it, and wipe out this three billion fire loss that the people of the United States have been paying year after year.

There is a Place for Both Hard and Soft Brick.

Albert Kleinert, New York, N. Y.: Mr. Chairman and gentlemen, I did not intend to say a word today, I came to listen. I am sorry to hear some of you gentlemen criticise the brick men. The brickmaker's job is to send the brick down for us to use; it is a matter for us to know how to use it. Every kiln in the brick plants has some hard brick and some soft brick and there is a place for both in the building, if the people only know it. It is for us to see we have enough hard brick. Lord knows we haven't enough bricklayers, or so-called bricklayers to lay the brick. It takes a mechanic on a brick wall. The minute he touches a brick he knows whether it is a hard brick or not. In the average building there is room for the soft brick and room for the hard brick, and if the bricklayer doesn't know enough to put a hard burned brick in the exterior of the wall, it is not the brick manufacturer's fault. Furthermore, it is the bonding of the brick work. If the bricklayer has no knowledge of bonding brick work—and they don't take time to do it—he doesn't want to do it is the trouble. Then you have the same kind of a wall if the mortar is properly applied and properly planned like bricklayers of experience will plan the mortar made for the kind of a brick wall you are looking for, although you may have a lot of hard brick on the outside of the wall or in the building. The brick is cheap enough, Lord knows, and I don't know how you make them for the prices we have been paying. Just now brick is up to $15.00 a thousand. I remember forty years ago when I got them to my different jobs delivered at $5.00 or $6.00 a thousand. What more do you want? But we had better mechanics then than we have today. If you will assist us in getting bricklayers properly qualified to use your material, I will guarantee you to use all the brick you can turn out. I have been an architect since 1876 and it hurts me when a man says there is no place in the world for a soft brick. There is no need for a hammer being used for stone. The first thing that was taught by my boss when I learned the trade was "Every stone will fit in the wall if you only find a place for it." We haven't the mechanics to do the work, and they are not worth fifty cents a day.

Mr. Hammond: How are we going to get the good mechanics?

Mr. Kleinert: That is the question I say you have to figure. I have had cases where I stopped the work on the building because the mortar was not correct. The father of our building code, Mr. Miller, is the wise man who provided a building code I like. If any of you want a copy of our building code I will send it to you. It calls for a superintendent of building to tell you what material is proper. If you are using a hard brick, it must be a hard brick, well burned and clean. If you don't have the proper bond and the proper mortar to lay up a brick wall, what kind of a brick wall do you expect to get. As I said before, it doesn't all depend on the material. How many men have I seen that don't know the difference between a hard brick and a soft brick! They don't know which face to lay outside. The minute a bricklayer touches a brick he ought to know how to place it in the wall—all he has to do is just to swing it around in his hand. (Applause.)

Mr. Price: I only want to take a moment. I want to correct an impression in the mind of the gentleman from Chicago, in regard to the strength of brick. The brick we tested were from seventy-three yards, and we took the minimum, since it was the soft brick we were going after. He says their brick run about 4,000 pound. Our brick from the seventy-three yards will easily average that—they run way over 6,000 mostly. With reference to lime mortar. This got better all the time; in fact, lime mortar does not begin to properly set at six months, but we took it three months, because we took that as about the minimum time. We wanted to make it safe. We have had walls come down at three months, not because of the weakness of the brick, but the weakness of the mortar joint. That is the reason we took it at three months because we considered that would be a minimum time. In reply to the gentleman relative to fire prevention. We have fire zones in Toronto where we do not allow any building where the walls are not of brick or something as good. We have outlying districts where frame buildings are permitted to be built.

Secretary Randall: I am going to pass these cards to the members of the Conference and ask them to fill them out.

We want to mail each of you at your homes a copy of a book published by the Building Brick Bureau, entitled "Types of Modern Brick Homes." I think you will find them helpful along this line of showing you some modern brick homes.

The Menace of Wood Shingles.

Walter Hull, Pittsburgh: I came in here expecting to have the pleasure of sitting through this discussion entirely as a listener. I did not expect to have anything to say whatever, but in sitting here listening to this discussion there are some thoughts that have come to me that I cannot bottle up. Perhaps it is because I was for a long time in the brick business and had to work on the selling end part of the time and had to go to customers and sell them brick for houses on the basis of their fire resistance. But for several years I have been with the government, studying fire resistance of building materials. We do not study the fire resistance of brick very much because it is not necessary, but I realize in connection with the further study of fire resistance that we are kidding ourselves and kidding our customers when we go to a customer and say they have a fire resistance house because it is built of brick. Yesterday we listened to a paper by Prof. Woolson, and emphasizing what he said, I want to say to you that you are not going to prevent conflagration by building of brick, so long as a brick house is covered with a shingle roof. This is just one item, but there is a whole string of them, such as dwelling houses that are not fire stops. It does not cost much money to fire stop, and yet once a fire starts in a block with buildings with walls that are not fire stopped that building is going to burn the same as any other kind of a building.

Several years ago I was working rather enthusiastically in connection with a campaign of the National Fire Protection Association to increase its membership, and among other associations I tackled our National Brick Manufacturers' Association. While your secretary appeared to give the matter his courteous consideration, it appeared there was not enough enthusiasm or something entering the desire for co-operation on the part of the National Brick Manufacturers' Association, to bring them to take that one little step of taking membership in the National Fire Protection Association, putting down a little $30.00 a year and having their committees co-operate with the work of that association for fighting the fire hazard. Now, in listening to Prof. Woolson's paper yesterday morning, the thought was running through my mind all the while that those things which Prof. Woolson was bringing out were very true, but how is the brickmaker going to act on it? How is he going to follow up these suggestions? It seems to me rather a difficult problem. The brickmaker is awfully busy making brick and one of his selling points is fire resistance, and yet from the other things getting into the building, the brick by itself cannot make the building wholly fire resisting. I want to appeal to you of the National Brick Manufacturers' Association to take some step, and take it by getting in co-operation with the National Fire Protection Association, and help fight the common enemy, such as improper construction and the improper use of wooden shingles, which will carry a conflagration across a brick building and set fire to the entire city, if they are permitted.

There is one other point I want to touch on. I don't think that the brick industry has any very legitimate quarrel with concrete; nor any very legitimate quarrel with lumber in the proper sense. There are places where brick should be used and there are places where concrete is going to be used, and there are places where it is equally not suitable. A few years ago I had some correspondence with a brickmaker who had been preparing to pull out gracefully from some of his brick business and get into some line that would not be interfered with by concrete, but in a few years he realized that his brick business was growing instead of dying and he had to take a new lease on life, as it were, and increase his plant. Concrete has its legitimate places and lumber has its legitimate place, and brick has its legitimate place, and brickmakers are wasting their time fighting concrete and fighting lumber, but if they will take one good hard pull altogether and batter at the common enemy, the fire hazard, they will get further and in my judgment meet a heartier response from the building public. (Applause.)

Fire Resisting Not Fireproof Construction Needed.

Prof. Ira H. Woolson, New York, N. Y.: Mr. Chairman, I hadn't the slightest idea of forcing myself upon you again today and had it not been for my friend, Mr. Hull, being complimentary enough to refer to my paper of yesterday, I should not have done so, but he made one statement that gives me an opportunity to speak to you again. He said he thoroughly appreciated some of the suggestions which I made in my paper upon making brick buildings more fire resisting, but he did not say how it was practical, or how it might be accomplished by the brickmakers. Now, I purposely yesterday said nothing about that. I wanted first to start some interest among the brick manufacturers, realizing, as I told you, that I believed you had been "asleep at the switch." I said that advisedly because I think your competitors have been very alive to the necessity of making their products in whole, and not in part, fire resisting. Those of you familiar with the literature which was spread out over the country for the last ten years by the concrete industry, by the metal lath industry and the other industries which are your competitors, realize that they have made great stress upon the proper protection of the elements composing the building in order to make it fire resisting as a whole, and have not confined their advertising to the material and the walls which they build. Just so far as they have done that and you have not done that, they have taken advantage of you.

I am very much interested in brick as a building material. As your chairman, Mr. Miller, will confirm, at least fifteen years ago in co-operation with himself we began a very careful, and at that time exhaustive research of the properties of brick which would make a safe and reliable building material which would provide a standard for use in the erection of wall work, and during a period of a good many years when in charge of the testing laboratory I tested many thousands of brick, and came to have a very great respect for it, but nevertheless brick buildings burn. It is perfect nonsense for any of you to advocate the use of brick for a fire resisting building, because the brick itself does not burn. Now these are hard cold facts. Your brick do not burn, but your brick buildings burn because you do not have proper construction. How can you remedy that? I think you can do a great deal. My first suggestion to you would be this: that a committee draft appropriate specifications or suggestions which you earnestly advocate; that in every brick building there shall be certain requirements to make that building as a whole fire resisting; get your cut-off wall where necessary: keep your wood work away from chimneys; have the walls properly fire stopped; have the stairways and other openings properly enclosed, and keep glass out of it. Put on the proper kind of a roof. Make suggestions which you know, or should know, are absolutely necessary to make a building fire resisting. Put all these things into a leaflet or booklet and then let that go out to all the customers you sell to, and while many of you have local dealers, pass them on to the dealer, and let the dealer pass them on to their customers. Do everything you can to protect the very excellent fire resisting material which you manufacture. You can do a lot if you will only try and start a campaign. (Applause.)

Andrew Lanz, Pittsburgh, Pa.

President Miller: Mr. President of the National Brick Manufacturers' Association, we regret we cannot continue this discussion any further. I want to thank you for being able to hold this joint session with you. I know it has been profitable.

W. E. Dunwody, Macon, Ga.: I would like to say a word while we are in joint session. These criticisms and suggestions are certainly wholesome to the members of our association, and we appreciate every suggestion that has been made. I certainly do, coming from far away Georgia. They are right, or they are wrong. If they are wrong, it is because we have failed by expression to give them the proper attention. Let us get together, and let every brick man go home and talk to his brother brickmaker and be progressive; so far as the future of the brick business is concerned, I am not at all anxious. We have been coming here for a good many years and the personnel of the Association is getting better and better all the time. We have a world monopoly, and yet the world puts a price on our product, due to our lack of co-operation. Let the brick manufacturers of the United States get together and take the suggestions these gentlemen have given us. Let us appreciate all they have said. Let us get together and help each other. There is a whole lot for us to learn. We realize it fully, but it is a sad commentary on the brick manufacturers that we should have such a small audience to meet with such a distinguished gathering of men as we have with us this morning, men who have had the recognition of the communities in which they live, and men who will help us if we will allow them. We have had some splendid suggestions made here this morning, if we will only profit by them.

President Robb: Mr. Miller, and gentlemen of the Building Officials Conference, I want to thank you for the opportunity of knowing you, and hearing you discuss some of the problems that confront us. I feel very sure every member of the convention has taken the criticisms kindly, and I hope we will have an opportunity of meeting with you soon again in the same sort of a friendly conference we have had today. We have our own troubles, as you do. We appreciate to some extent every official's duty to the community and to his city. I think it is his duty to tell us of the things he has to contend with and try to get us to help him. I want to ask as many of you as are interested in something that will be elevating and educational to stay with us and hear Professor Bleininger, who is next on our program, and who always has something to tell us that is worth listening to. I am going to ask our new third vice-president, Mr. T. E. Wilson, to take the chair for a little while. Gentlemen, you need no introduction to Prof. Bleininger. (Applause.)

George W. Keller, Philadelphia, Pa.

A. V. Bleininger, Pittsburgh: Mr. President and gentlemen of the convention, I have an apology to make inasmuch as this paper is not at all technical, and was written with special reference to this Association.

SOME THOUGHTS ON INDUSTRIAL RECONSTRUCTION.

A. V. BLEININGER, PITTSBURGH, PA.

Mr. President and Gentlemen of the Convention:

The cessation of hostilities leaves our structural clay industries in an expectant condition, trusting to the general improvement in business which should follow the conclusion of a victorious war. During the war, in common with all the building industries, the manufacturers of clay products have cheerfully borne the burden of restrictions and limited production. As a whole, the industry has been hard hit and for every plant which has enjoyed the benefit of markets induced by war conditions there were others whose market had greatly diminished or had dwindled away to the vanishing point.

The question as to what the immediate future will bring is being asked by every one. It is the writer's opinion that we have every reason to be optimistic regarding the business outlook. A great country like ours, with enormous resources, far from being developed, with housing conditions not at all permanent, with cities, towns and villages to be enlarged, sewage system to be installed, thousands of miles of roads to be paved and millions of acres of land to be drained, is the most certain guarantee for the continued growth of the clay business. It is not to be thought for a minute that agricultural, mining and industrial progress will cease to continue and with it the demand for ceramic products. The United States, of all the countries of the world is surest to grow in national wealth and not even the war debt of the greatest war in history, in fact no power on earth can impede this development.

Even this war has not been without its benefits. We have learned many things we did not know before. We have learned the value of discipline, of co-ordination and the art of getting down to essentials. It behooves us now to apply what we have been taught, to peace conditions. We must analyze the situation and take steps which take advantage of every opportunity in marketing our products and effect economics which will tend to bring costs down to their proper level. We must learn to apply statistical methods of studying industrial conditions as has been done by the Government and to take a broader view of the situation than we have done in the past when narrow, small policies alone dictated the course of each individual, never realizing that injury to an industry as a whole is certain to reflect upon every member of it.

It must be confessed that the relation between the Government agencies and the structural clay industries during the war was by no means a satisfactory one. The lack of unity and co-operation among the producers made it exceedingly difficult to treat their problems with the certainty and celerity which was to be desired. This lesson should not be wasted but every effort made to correct the faulty conditions.

With reference to the market conditions it is evident that we can no longer be content with accepting them as they are but that resort must be had to more aggressive methods.

In the first place we must ourselves realize fully the significance of the physical properties of clay products and impress this information upon the users by concerted effort. We must not only tell the public to use bricks, hollow blocks, terra cotta, sewer pipe, drain tile, etc., but we must tell them why they should do so. Authoritative statements concerning the strength and the fire proof character of structures built from clay products, their beauty, their sanitary and heat insulating qualities must be made again and again. We cannot dwell too much upon the enormous benefit both to the individual and the nation of permanent construction and upon the tremendous fire losses due to the use of combustible materials which can be avoided. With permanency the question of architectural effect must receive attention. The people must be shown that unsanitary, hideous frame structures are a real disadvantage both to the owner, the neighborhood and the community. There is no reason why with brick houses of proper design our streets should not be made attractive but the industries concerned must do their part, and concertedly, in this great task of educating the public to the realization of the advantages involved. Attention should also be given to arousing interest in this subject through the women of the country, who after all are the real home makers. The sanitary advantages of clay products which are not subject to decay are by no means to be overlooked in this age of progress in health matters. The fact that the better thermal insulation of structures built of ceramic materials causes the fuel consumption for heating purposes to be less is one more argument worth mentioning.

It is true that campaigns working towards the more extensive use of bricks and other clay products have been conducted but these have been more or less spasmodic attempts which have yielded inadequate permanent results. To be really effective such work must be nation wide and conducted on a scale commensurate with the magnitude of the task. Furthermore, these campaigns have represented the scattered efforts of paving brick, building brick, terra cotta, hollow tile, sewer pipe, wall tile and other industries. How much better it would be if such work could be united in one comprehensive, general movement as is being done by the lumber and other interests. The writer fully realizes the apparent conflict between certain of the structural clay industries but these differences are more imaginary than real. Each material must stand on its own merit but to promote the use of one of the clay products is to advance the use of all.

It is not intended to disparage the strenuous work of several clay products associations such as those representing paving brick, sewer pipe and face brick which have perfected fine organizations and have achieved remarkable results, but the plea is made, first for the inauguration of similar, specialized associations among the other clay industries and second, for the co-operation of all of these through one general agency to do such work as is pertinent and important to all. Having realized organizations for the consideration of trade and market conditions of each of the branch industries, a council, if you please, composed of as small a number of representatives as possible, representing the entire structural clay products industry could be created. It would be the function of this body to deal with broad policies, the general promotion of the use of ceramic products, labor conditions, legislative questions of concern to all, freight rates, questions of standardization and it could at all times represent the industries concerned in dealing with the Government, with the minimum of wasted effort and friction.

It may be said that such a scheme is Utopian and it certainly would be if it were not possible to enlist in this work the services of men, possessing broad visions, knowledge of the industries, fair mindedness and freedom from the petty jealousies that wreck many an undertaking which might be a useful institution. Personally I believe that we have such men in these industries and that the scheme is not an impossible one.

These specialized bodies and the general council would thus concern themselves chiefly with the commercial aspects of the business. In this respect, probably one of the most important needs would be a survey of each industry along the lines suggested by the work of War Industries Board. Labor conditions, the distribution of plants, their production, the reason for overproduction in one section and under production in another, the grades of ware manufactured, average selling prices and many other facts should be compiled, studied and analyzed. A survey of this kind would enable the associated manufacturers to deal with such questions as the selection of territories requiring special attention due to the use of other building materials in order that the use of clay products may be stimulated, conflict in freight rates, equitable distribution of markets, and many other problems. Even the smaller manufacturer could be made to feel that he is being benefited by organized effort.

The chief difficulty, of course, lies in the fact that the brick industry, particularly, is often confined to local markets and that men under such conditions are skeptical as to the advantages of national organization. They must be offered special service which will help increase the demand for their product. It is obvious that the organizers and paid secretaries must be men of more than average ability who thoroughly understand the situation and possess the enthusiasm necessary to carry through the project. The selection of these men is one of the difficult tasks required by the situation. Concerning the technical side of the industries it might be said that we already have two agencies available, the National Brick Manufacturers Association and the American Ceramic Society, one representing the specialized field, the other the entire ceramics industry. Much remains to be done also along these lines and co-operation is needed as well. It is self evident that technical progress is bound to continue and that to imagine conditions to be otherwise is to dwell in a fool's paradise. It is necessary to keep abreast of the times and to utilize the agencies available to the fullest extent, having always in mind, however, the coordination of the technical work with the activities of the commercial associations referred to above. Probably in some cases overlapping of work would occur but this can be largely avoided by the use of plain common sense.

I believe that the time has come for the revival of the old time practices of the N. B. M. A. The organization has shown a tendency of late to serve strange gods which is an unsatisfactory practice. In the days gone by this Association was frankly and unequivocally devoted to the discussion of technical subjects. That often we did not come up to strict scientific definitions did not matter in the slightest; we were among ourselves and had a chance to speak our mind. This is as it should be. But we must do more than this; we must enlarge our activities now and on a scale which might have appeared preposterous some years ago. We must make this Association a clearing house of technical information pertaining to the brick and allied industries. We should have an annual volume giving us this information, gathered from all over the world and in languages understood by the average man. We should have extensive studies made of improved burning conditions, of different types of kilns, of the different coals available, improved dryers, new color effects on bricks, overcoming of scumming, the quality of our product from every standpoint and a hundred other subjects. I believe your Committee on Technical Investigation should be authorized to organize a program which will not make use of college and other laboratories but should make laboratories out of some of your plants. It is too much to expect the small appropriation granted to Ohio State University and the papers of this Convention to furnish enough material to fill the annual volume with interesting material. Let us enlist the services of men scattered over the land in a practical program consisting of a series of interesting problems at the beginning of the Association year so that by convention time we shall have a symposium of interesting papers. I believe we have men who are willing to help in this work.

It should be the prime object of this Association from now on to do work of such a grade that no manufacturer can afford not to be a member. With proper support the Association should reach a condition where it will be able to spend thousands of dollars every year for technical work which will return rich dividends. As mention has been made above of associations looking after the commercial interests and the co-operation to be effected by them so there should be technical co-operation on general problems of concern to all. This does not mean, of course, individual problems but those affecting the industry as a whole. This might be illustrated by means of a hypothetical case. Supposing a new type of kiln, promising a great saving of fuel, appeared on the market. In the usual course of events some one builds the kiln, meets with the difficulties incident to any new type of construction, becomes discouraged or bankrupt and the scheme is discredited, without having, perhaps, any real fundamental defect. What would be a case of ideal co-operation?

B. W. Ballou, Buffville, Kans.

Under these conditions a committee of experienced practical and technical men would examine the design of the kiln and pass upon its apparent merits and defects. If promising they would recommend the construction of an entire kiln or a section of it large enough to demonstrate its practical value. The cost would be assessed on an equitable basis among, say, 500 or 1,000 manufacturers. A thorough test and report upon the kiln would evidently settle the question and might thus be the means of saving vast amounts of fuel, rendering an important service both to the industry and the nation, at a minimum cost to the individual manufacturer. The work of such a technical Association should therefore not be confined to an annual meeting but should be kept alive every working day of the year. It should have available in time its own laboratory and plant for the examination of clays, the testing of products and all similar work available to its members. When such a happy state is reached we could really say that the modern principle of co-operation had been carried to its logical conclusion.

In order that continued technical progress be assured it would be desirable also that the sons of manufacturers who are expected to follow in the footsteps of the father be given the advantages of a scientific education which will fit them for the work, such training as is offered by the colleges giving instructions in ceramics. Only too often the sons of our manufacturers are sent to Universities which are more in vogue, a practice which may be fashionable but not as helpful as it might be.

In conclusion the writer desires to apologize for presenting these ill arranged thoughts but they have been offered in the hope that they might contain some point which might be of use. The chief requirement of the industries you represent is intelligent co-operation, the application of business statesmanship rather than the methods of ward politics, based on the principles of justice and fairness to all. (Applause.)

General Discussion.

Vice-President Wilson: Has any one anything to say on this paper which has just been read. It is certainly a very excellent one and worthy of our serious consideration.

A. W. Krause, Sharon, Pa.: I have nothing to add to what has been said, but I would like to say that we ought to follow his advice immediately. You ought not wait until our next convention before doing so. I am interested in another business that has an association that really is an association and help to the members. This one is, too, of course, and I am proud to belong to this National Brick Manufacturers' Association. The other association to which I refer is the Dry Cleaners' Association, and they are working along the very line that Professor Bleininger has been talking about. They have a national testing section which saves every dry cleaner who belongs to it a lot of money. They furnish him stuff which would probably cost each one hundreds of dollars, for $15.00 a month. They also run a laboratory and you can go to them with your laboratory problems and they solve them for you. Suppose some salesman comes to you and tries to sell you the highest priced stuff—I know of one particular instance where the association had investigated a soap for different work, and they found the cheapest soap of them all was the best one, and the association really saved a lot of money on soap. This matter of laboratory, and a man who will go to your plant and go over your problems for you would be a great thing. (Applause.)

Secretary Randall: "Coming events cast their shadows before," and we have not been deaf nor blind to the needs of the organization such as Professor Bleininger has outlined to you, and with such men as Professor Bleininger at the head of such an organization the industry would profit immensely. To show you we have had our ear to the ground, here is a resolution that has been drawn up pursuant to the instructions of our Executive Committee, by Mr. W. D. Richardson, a member of the Executive Committee.

A Greater N. B. M. A.

Whereas, The National Brick Manufacturers' Association in the excellent program of the convention, in the valuable papers presented, as well as in the social functions and the opportunities afforded those in attendance to get acquainted and to consult in regard to the special difficulties encountered in the manufacture of their products, has made it evident to all that the Association is maintaining its high standard of education and helpfulness and contributing largely to the advancement of the clay industries of America and deserves the support and co-operation of all manufacturers of structural clay products; and

Whereas, A larger membership would enable the Association to be of still greater benefit to the industry by providing a larger revenue for carrying on investigations into the technical problems involved in the fabrication of clay products, and also to give to the organization greater influence in the commercial affairs of the nation; therefore, be it

Resolved, That the Association undertake immediately an active, vigorous membership campaign and to this end be it further

Resolved, That a permanent membership committee be created and effective, campaign literature be prepared for its use, that this committee consist of five members, two of whom shall be the president and secretary of the Association; that this committee shall select as many additional members of the membership committee in the various brickmaking sections of the country, as it may deem advisable. That the duties of this committee shall be to solicit and secure applications for membership in the N. B. M. A.

Secretary Randall: Mr. President, this can, of course, be referred to the Committee on Resolutions, or can be acted on as a separate resolution. This, of course, does not reach quite the extent which Prof. Bleininger has in mind, but I believe it is the nucleus from which we can work to Professor Bleininger's idea and take up the activities he has in mind.

W. E. Dunwody: I move the resolution be referred to the Committee on Resolutions.

George O. Berry: Second the motion.

Secretary Randall: The National Association has always in every way stood by every other organization of brick manufacturers. It has often been termed the "Daddy" of all clayworking organizations, and that is literally true. Out of this organization have grown all the other organizations. It is a pity, "and pity 'tis, 'tis true," petty personalities have entered in and resulted in an estrangement rather than a drawing together. It is one of the idiosyncracies of human nature. The gentlemen told us at our banquet in dealing with the labor proposition, that we are dealing with human nature, and many men of many minds cannot always be centered in one operation without pretty strong line of restraint. I said some twenty odd years ago in turning the gavel over to the toastmaster at our banquet at Old Point Comfort, that the success of our Association could be summed up in one word, and that one word was **tolerance**. We meet with different things in our minds, different interests to promote, different problems to meet, but it was tolerance one with the other, which led us all into one big family group, and enables us to work one with the other. If we are going to take up Professor Bleininger's suggestions, which should be done, the various interests should be tolerant one with the other, promoting the variour interests, through the various divisions, but working with one mind for the ultimate benefit of all, but we must in some way eliminate this petty jealousy which pulls down instead of building up. I believe we can go into this in the spirit and in a way that will bring to us these various elements of importance in the industry. I believe it can be done and that our organization will be more useful in the future than it has in the past, and it has served a good purpose in the upbuilding of the industry.

E. J. Anderle, Dayton, Ohio.

The motion to refer the resolution to the committee was put to a vote and carried.

Mr. Hammond: Pursuing that very beautiful thought of harmony and co-operation, if it is proper, I would like to say, Professor Woolson gave us some very helpful suggestions, and I think we might take some recognition or some steps to follow out his very helpful suggestions to put this work into effect.

Professor Woolson: Mr. President, that is the first real word of encouragement I have had since I came before this Association, and I appreciate it. The gentleman said, "Work which we will put into effect." I accept it, and I will help you in every way I can and furnish you with all the information I can.

Vice-President Wilson: What is next on the program, Mr. Secretary?

Secretary Randall: A day or two ago we sent a telegram to Mr. Ittner advising him of the action of the convention in making him a life member. I have a reply which, I am sure, you will all be glad to hear.

"Theodore A. Randall, Secretary N. B. M. A.,
William Penn Hotel, Pittsburgh, Pa.

Your telegram informing me of my election as a life member of our Association just at hand. This is indeed a great honor. An honor which I prize as highly as having been elected an honorary member of the National Association of Manufacturers a few years since. Kindly convey to the Association my most grateful thanks.

ANTHONY ITTNER."

(Applause.)

I presume we may go on with our regular program. Mr. A. F. Greaves-Walker, of Baltimore, has a paper on "Fuel Economy," a subject which ought to prove of very great interest to all of us.

President Robb: Gentlemen, I have the pleasure of introducing to you Mr. A. F. Greaves-Walker.

A. F. Greaves-Walker: Mr. Randall asked me to prepare a short paper which would be in the form of a starter for a discussion of the fuel question. This is one of the most important subjects which come before this Association regularly every year, and it seems to me that if the Association working on Professor Bleininger's suggestion and working on this one question of fuel economy for the clay products manufacturers would accomplish a great deal of good.

FUEL ECONOMY.

A. F. GREAVES-WALKER, BALTIMORE, MD.

Mr. President and Gentlemen of the Convention:

I can assure you that I do not approach this subject with a great deal of enthusiasm. This is not due to lack of interest on my part, as there are few subjects in which I am so greatly interested. It is due however, to the fact that year after year this same subject is discussed at these conventions under various camouflaged titles such as the "Burning Question," "Kiln Firing" "Kiln Design" etc., with apparently no results so far as the average clayworker is concerned.

A. F. Greaves-Walker, Baltimore, Md.

I have been forced to the conclusion during the past year that very little result will ever be obtained until some branch of the Government, backed up by laws with "teeth" in them, can take up the matter and put on the "screws."

I am not contending that this industry is the only one that requires attention, for such is not the case, but as an industry it is the second largest consumer of fuel in this country, and the greatest waster and therefore with fuel conservation assuming a national aspect it stands out in great prominence. It was most natural then that when it became necessary to conserve fuel the Fuel Administration immediately picked out the clay products industry as the first to receive attention.

Much of the wastefulness in the industry has been and is due to ignorance for which there is no excuse. Some of it is deliberate. There are many manufacturers who know that there are more economical methods of burning, but because fuel has been cheap and plentiful will not give them the slightest consideration. Men who have been long in this business made statements before the officials of the Fuel Administration that show they are totally ignorant of the basic principals of burning fuel or else care nothing about whether the next generation finds our fuel deposits exhausted or not. That our coal, oil and gas deposits cannot last forever everyone will admit—That fact being established what are you going to do to make them last as long as possible—leaving out of consideration entirely the question as to whether you can make a profit under your present methods. Do you not owe something to the clayworkers of coming generations, your own children and their children.

Some of you may remember the warning given to the people of the Findlay (Ohio) natural gas district by old Dr. Orton when he was Geologist for the State of Ohio. Thinking that they had an inexhaustible supply these people burned immense flares in their streets day and night, lighted wells that threw flames scores of feet in the air and in every other way wasted the gas in order to show what an immense quantity was available. Dr. Orton warned them that such waste together with the consumption of the large factories they located there would shortly exhaust the wells. The natives were so incensed at him that they sought to have him removed from office and came near succeeding. His warning came true only too soon with the result that hundreds of thousands of dollars were lost by those who erected plants in this vicinity.

Our coal deposits are just as exhaustible as our natural gas and sooner or later the curtailment of output will cause higher prices and a move on the part of the Government to force economical methods upon users.

If they did not accomplish much else the officials of the Fuel Administration did study the relative fuel economy of the various industries and the resulting data was surprising. Many clayworkers were considerably worried during the first half of last year because the Administration did not curtail the production of the Cement industry. It may now be interesting to you to know that one of the reasons for this was that upon investigating the use of coal by that industry it was found that they had worked on the problem of fuel economies to such an extent that it was practically impossible to carry economies further unless they utilized the waste heat from their stacks for operating boilers. As this would involve a very expensive dust catching apparatus involving an expenditure of from $125,000 to $250,000, installations had not been made on account of the high price of materials, but all of the larger companies were expecting to make such installations as soon as possible and some of them even offered to do so last year if the Administration insisted.

In one instance which I personally investigated I found that improvements made on a cement plant in 1916, before a fuel shortage occurred, had netted them a saving in 1917 amounting to $18,000. This was a saving on fuel alone.

I know the clayworker does not love the cement man, but after rubbing shoulders with him I cannot but feel that his methods, including advertising, selling and manufacturing, are well worth studying. Certainly his adoption of every bit of apparatus and equipment that makes for further economies will make it increasingly difficult for you to compete with him. And do not think for one moment that he doesn't know this.

I feel it is almost useless to go into the various ways in which further fuel economies can be obtained. I am sure each one of you know of a dozen ways of saving fuel on your plants—and the only reason you do not adopt them is that you cannot be brought to see that it is worth while. Now that the war is over and the fuel situation is easy, many of the good resolutions you made last year will be forgotten and you will again be absorbed in grasping for that visionary profit which never seems to come within reach.

I am a very firm believer in the continuous kiln and believe that it should not be adopted merely because it will make for you a greater profit, but also because it will save our fuel deposits. However, with your present equipment and with the expenditure of very little money very great economies can be obtained in probably 90% of the plants in the country.

A leaflet which was issued by the Fuel Administration especially for the clayworker, but which, I am afraid, did not reach all of you, contains the following simple advice. To follow this advice conscientiously means a saving of from 10% to 30% of your fuel and to follow it will cost very little.

RECOMMENDATIONS OF UNITED STATES FUEL ADMINISTRATION IN THE OPERATION OF KILNS

To Accompany Standard Questionnaire

It is the purpose of the Fuel Administration to increase the operating efficiency of equipment already in use rather than to recommend the installation of more up-to-date equipment at this time, although in many cases it is no doubt badly needed. To this end the Fuel Administration recommends:

1. That provision be made for weighing or measuring and recording the fuel used on each kiln each shift or day.
2. That provision be made for only adequate air supply to the fuel and convenient means provided for the measurement and control of the draft.
3. That doors be installed on fireboxes.
4. That grate area be adjusted to proper percentage of interior volume of kiln. There are various standards for different products and kiln sizes. Information can be had by applying to Industrial Furnace Section.
5. That provision be made for continued repair on leaky flues and bottoms and that all cracked brickwork be repaired.
6. That the interior of kilns and flues when possible be plastered often with fire clay and grog mortar.
7. That flues be cleaned regularly.
8. That burning operations be controlled by use of pyrometers.
9. That only dry ware be set in kilns. Wet or partially dried ware set in kilns raises fuel consumption very considerably. Kilns are expensive and inefficient dryers. Dryers should be checked up and all irregularities in operation remedied.
10. That kilns be set to capacity, also that they be set in such a manner as to eliminate short-circuits between fireboxes.
11. That kiln crowns be insulated. Care must be taken to insulate properly. Too much insulation has been known to cause failure of crown in cases where high temperatures are used.
12. That kiln yard be properly drained. Moist kiln bottoms raise fuel consumption.
13. That 17 to 18 inch wickets be used.
14. That coal be stored on paved or boarded surfaces to eliminate waste.
15. That green coal and coke found in ash pits after cleaning be saved.
16. That defective or inefficient oil or gas burners (if such are in use) be discarded and a better burner be installed, selected from any available type which is used successfully elsewhere. (Tests should be made to establish identity of best burner.) Meters should be used on gas and oil lines and consumption for good economic burn determined.
17. That waste heat be utilized in connection with drying process, or with steam boiler for steam plant.
18. That Seger cones, draw trials, and settle test be used in conjunction with a draft gauge and a pyrometer to enable fireman to control his burn properly. Reduce the time of burning to the minimum. Most kilns are still being burned for too long a time.
19. That a schedule showing time-temperature curves, draft-temperature period curves, firing periods, with number of shovels of coal to be thrown, cleaning and clinkering periods specified, settle, cones, shrinkage of draw trials, etc., to suit the individual case, be given to the burner, who shall be directed to follow same closely.
20. That a complete record showing time, temperature, shrinkage, settle, draft, periods of firing, time of clinkering, and amount of coal used be kept for each kiln.
21. That a record of tonnage of ware per ton of coal be made up for each kiln showing percentages of perfect ware produced, defective ware produced, and percentage of bats.
22. That a bonus system for firemen be inaugurated based on fuel saved.
23. That a competent man in the plant be detailed to handle the conservation program on your kiln yard. Reports of each shift or day may be made to him by the fireman, he in turn reporting to the office results obtained.
24. Do not install fuel saving equipment, especially pyrometers, without the advice of a competent expert. To install any such equipment merely on the manufacturers' say so might defeat your good intention and cause unnecessary expense.
25. Charge the fire boxes with coal at shorter intervals and with fewer shovels of coal.

Study your individual problems. Get expert advice if necessary.

Standardize your burning operations.

Keep accurate records of each burn. WITHOUT THIS YOU CAN NOT EFFECT FUEL ECONOMIES.

Interest your firemen in the fuel conservation plan. Impress on them that the very existence of the plant may depend upon the amount of fuel they can save for munition manufacture.

That it is a patriotic duty and will help in winning the war.

Make your slogan in this work "Maximum production with a minimum of fuel." In this you serve the most vital interests of your Nation and, incidentally, your own business interests will be benefited.

(Continued on page 306.)

EASTERN PAVING BRICK MANUFACTURERS' ASSOCIATION HOLDS INITIAL CONVENTION AND ELECTS PERMANENT OFFICERS.

ON MONDAY, February 24, the paving brick manufacturers making and shipping paving block in New York, Pennsylvania, Delaware and New England, met at Harrisburg, Pa., and formed an organization to be known as the Eastern Paving Brick Manufacturers' Association, for the purpose of promoting and extending the sale of paving block in the territory represented.

The following officers were elected: President, Ray Winslow, New York City; vice-president, M. E. Gregory, Corning, N. Y.; general manager and secretary, W. E. Perkins, with headquarters at Philadelphia, Pa.; treasurer, R. T. Hutchins, Wheeling, W. Va. Mr. Perkins, for a number of years chief engineer for the Dunn Wire-Cut-Lug Brick Co., of Conneaut, Ohio, as secretary, will have general charge of the promotion work, with authority to employ such assistance as he deems necessary.

The meeting was attended by about thirty manufacturers, all of whom were unanimous in the belief that the time was ripe for promotion work in that territory and enthusiastic over their plans for the work.

During the afternoon the entire delegation visited the State Capitol and paid their respects to the Pennsylvania State Highway Commissioner, who was much pleased to meet the brick men personally, and told them that it was the intention of the state officials of Pennsylvania to spend $125,000,000 on permanent roads in the Keystone state.

In the evening nearly all of the delegates took the sleeper for New York City for the purpose of attending the Good Roads convention. In the party were three ex-presidents of the National Brick Manufacturers' Association, Will P. Blair, M. E. Gregory and C. P. Mayer, and all of the newly elected officers of the new asscoiation, so it was decided to initiate the officers in regular (or irregular) form. Will P. Blair, Ray Winslow and Charles Denniston took charge of the singing, inasmuch as Mr. Winslow had his Rotary song book with him. Had Billy Sunday heard the singing the brick business would have been minus some of its best boosters long before this article is in print, and had there been any brick bats handy there might have been another story to relate, as the three lonely travelers who tried to sleep during the impressive initiation vowed vengeance on the party, but as they were hopelessly in the minority, they had the good taste to suppress their wrath. ONE OF 'EM.

MEETING OF BRICK MANUFACTURERS OF DISTRICT NO. 10.

Pursuant to a request by the Peace Industrial Board at Washington, Frank W. Butterworth, of Danville, Ill., chairman of the District War Service Committee on Brick, issued a call for a meeting at the Claypool Hotel, Indianapolis, March 13. Nearly thirty of the brick and tile men responded, and after carefully considering the building situation and being in hearty accord with the purpose of the Government to promote an immediate revival of building operations, it was unanimously agreed to make a minimum price of $11.00 per thousand for common building brick at the plant, to be in effect until otherwise agreed upon. It was generally conceded that the average cost of manufacture exceeds that amount, ranging around $12.50 per thousand. Hence, the minimum price of $11.00 is tentative, not an arbitrary fixed price, but must be subject to such changes as particular local conditions demand. There is no restriction upon any individual manufacturer, who is at liberty to make a price more or less than the amount named, as may be necessary.

THE NEW TYPE 00 SERIES OF THEWS—SHOVEL OR CRANE.

OF PARTICULAR INTEREST to clayworkers at this time, when plans are being formulated for big business, is the new Type 00 Series of Thews. Available for either shovel or crane service, this machine has an exceptionally wide range of usefulness, a feature that will prove decidedly advantageous and profitable in the digging of clay or the handling of miscellaneous materials about the plant.

This Type 00 may be equipped with steam, gasoline or electric power.

For steam operation, independent double reversing engines are employed for the hoisting, swinging and crowding movements. For gasoline and electric service, there is used a single motor which operates at constant speeds, the various motions being controlled through reversing frictions.

Gasoline and electric shovels are much favored, because with them operating expense continues only during the actual digging of the clay. To start the gasoline shovel, simply crank the engine and engage in the clutch. The electric shovel is started or stopped instantly by throwing in the switch or disconnecting it. No boiler or freezing troubles are encountered with gasoline or electric power.

When equipped as a shovel (Fig. 1), the Type 00 is regularly mounted upon trucks with wide-tired traction wheels, and with both hand and power steer. It is self-propelling at the rate of 1½ miles per hour.

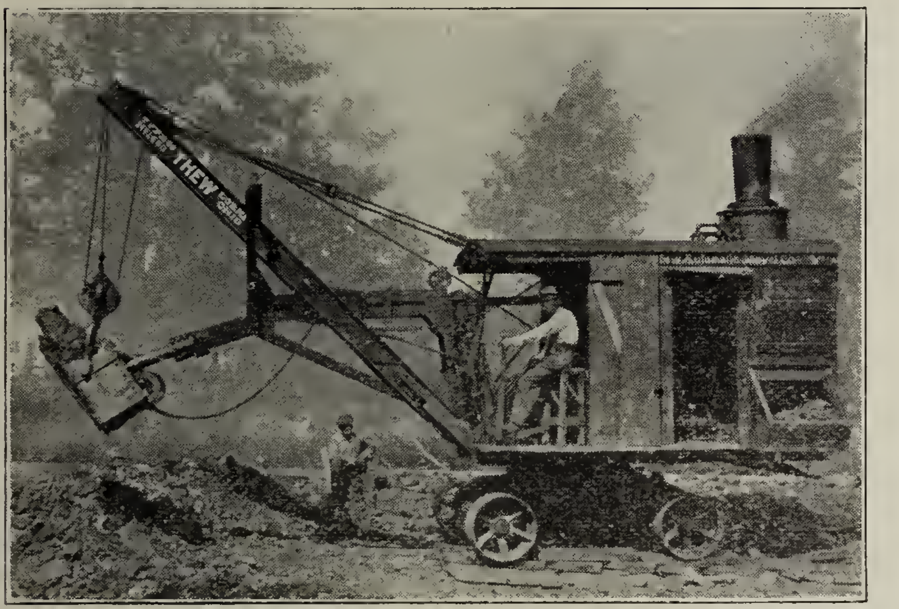


Figure 1.

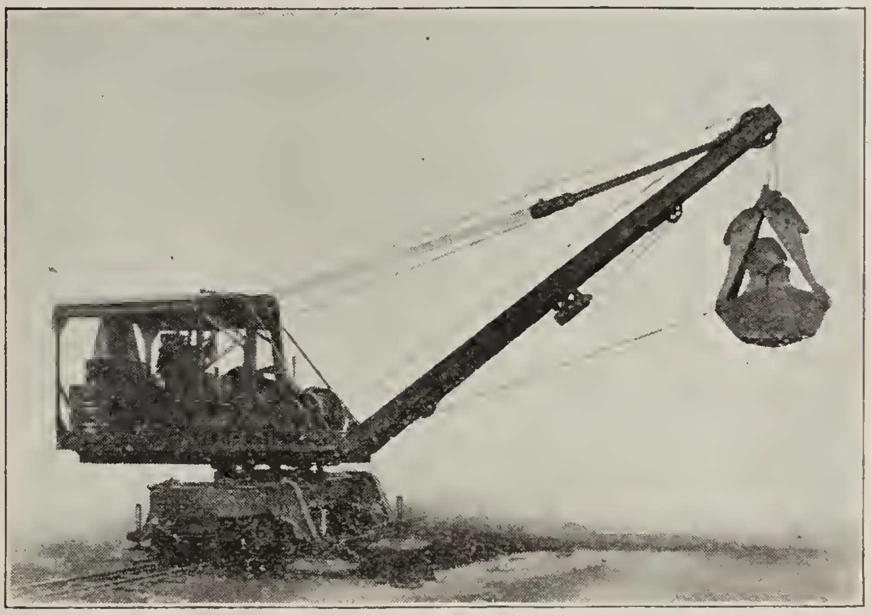


Figure 2.

Shovel boom is of the exclusive Thew Horizontal Crowd design which is particularly suitable for the single motor gasoline or electric service.

Working weight of this shovel is 14 tons, and a ½-yard dipper is regularly used. The shovel will dig any clay, earth or thoroughly blasted material at the conservative rate of one complete dipper per minute or 300 cubic yards per 10 hours.

While light in weight and limited in power, the Type 00 is an entirely reliable machine for excavating operations of a not extremely difficult nature and where large outputs are not needed. It is not intended to supersede the larger Thew shovels, although under many conditions it will meet requirements equally well.

By the addition of an auxiliary shaft carrying two drums and the substitution of a longer and lighter boom, the shovel is converted into a double-drum crane (Fig. 2) capable of handling a ½-yard clam shell bucket, with a working radius of 25 feet. The auxiliary shaft in no way interferes with the shovel operation, in fact the change from crane to shovel involves only the transfer of booms.

When equipped for gasoline or electric motor, this auxiliary shaft is employed for controlling the dipper crowding motion. All drums are power driven.

For use on narrow gauge industrial railways, the Type 00 crane superstructure is mounted upon double tracks, distributing the weight over eight wheels. Inasmuch as the usual gauge of such railways is 60 centimeters (24 inches), it is evident that the use of jacks or outriggers is necessary in crane operation. With jacks, set loads of 10,000 pounds may be handled at a working radius of 12 feet, thus meeting the customary rating for a five-ton crane.

Summed up, the new Type 00 Series represents the acme of design and construction so far achieved by The Thew Automatic Shovel Company, Lorain, Ohio, which initiated the full-swing excavator in this country and has since devoted its undivided attention to the development of this type of equipment.

Over fifty of these Type 00 Thews were shipped during 1918.

THE VOICE OF EXPERIENCE.

Proverbially, experience is a dear teacher. For that reason, it is a wise plan to profit by the experience of the successful, and brickmakers can do this by reading and heeding the announcement on page 334 of this issue, in which is suggested a simpler and more economical manner of handling clay from bank to machine. Mr. Robert Twells has mastered all of the details of the brick business. He is very practical and painstaking in whatever he does and withal exceptionally conscientious, hence his knowledge which he offers to impart freely to those desiring to improve their methods, is of great value because it is the result of successful practice, not mere theory. Theory and practice ought to go hand in hand, but they do not always do so. The Twells system is a happy combination of the two. Particulars can be had for the asking. Address Robert Twells, Alton Park, Tenn.

THE ILLINOIS CLAY MANUFACTURERS' ASSOCIATION TO MEET IN CHICAGO.

The forty-first annual convention of the Illinois Clay Manufacturers' Association is to be held in Chicago April 9 and 10. An effort is being made to have all the various brick and tile associations join in this annual event which, it is hoped, will prove a most interesting occasion. The program of unusual interest is in course of preparation. Full particulars will be given in a subsequent issue of The Clay-Worker. In the meantime, bear in mind that you are expected to be in Chicago April 9 and 10.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
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Ten copies, " "	15.00

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☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXXI. MARCH 14, 1919. No. 2a.

CURRENT COMMENT.

The great question of the day is how to stimulate building.

* * *

Are you prepared to push your business and enlarge your trade?

* * *

It's a good time to be nailing up a fresh lot of those Build with Brick signs.

* * *

A total registered attendance of 401 was not so bad, all things considered.

* * *

Waiting for a demand before starting a fire in your brick kilns is a poor way to help boost building operations.

* * *

The American Ceramic Society deserved to grow, and it has grown, for which those doing the cultivating deserve much praise.

* * *

The brick industry is a "going concern" all right, though it is a fact that many want to go their own way regardless of the other fellow.

* * *

One of the accepted needs of the day is to build more new school buildings, and the right thing to do is to build them of brick and other clay products.

* * *

If the clayworking industry operates as it should this year its fuel requirements should approximate ten million tons of coal, which means something both to the coal industry and to the clay industry.

* * *

No man who attends and takes an active part in the N. B. M. A. conventions has occasion to regret attending. It is those who dodge the sessions who miss some of the good things and fail to get all the value they should from these gatherings.

* * *

One of the things we are pretty sure of is a great crop of early war histories.

* * *

Those who didn't go to the big N. B. M .A. conventeion can now read all about it, and that will help some.

* * *

One of the best signs of the times this month is in the earnest and widespread movement for a big year in road building.

* * *

It would only take a few cents per thousand brick sold to make up a big advertising fund if everybody would come across and chip in.

* * *

Systematic cost keeping is essential now to meet the government revenue requirements, and it will simplify things all around to uniform those used in the brick industry.

* * *

Local gatherings in the clayworking industry should be the order of the day now so that there may be harmony and co-operation all around in the work of readjustment.

* * *

You not only learn things from visiting with the other fellow when you have a little time to spare, but it also serves to keep up a better understanding and to keep down bad competition.

* * *

The big share of the added cost of building operations is not so much in the higher cost of the building material as it is in the cost of using it—the high wage and the inordinate demands of organized labor.

* * *

Reports coming in indicate that some of the top is coming off the war prices, but the prices of practically all manufactured products will remain upon a much higher level than formerly, for the simple reason that wages are higher and working hours shorter, and likely to remain so.

* * *

"Build Now" is the great slogan of the day, and various government agencies including the Department of Labor at Washington are actively co-operating in pushing the idea. If you have not already received them, write for some of the poster literature being sent out by this department.

* * *

The atmospheric attitude of the Federal Trade Commission is now looking much better from the business man's standpoint. Commissioner Fort, in a recent talk to a gathering of coal men, said that every argument which can be advanced for the Webb act permitting combinations in the export trade may also be urged in favor of combination for domestic trade. In short, he advocates the abolishing of our anti-trust laws so that business and the government may get together to stabilize and maintain fair prices.

FOR A GREATER N. B. M. A.

The war period demonstrated the need for and the value of industrial organizations, and especially those of national character, to handle nation-wide problems. And now that the war is over the need for this wider and better organization is urgently felt for the solution of the many problems involved in readjustment. In a word, events have made it plain that every man in the clayworking business should first of all be a member of the N. B. M. A., the parent organization of the clayworking industries and the one vehicle in which all can join together for mutual benefit in an educational and social way, and which can stand for and represent the industry as a whole in the big, broad problems of the day. There is room and a need for local organiaztions, and for specific organization of given lines of work and products, but the foundation and starting place for it all is with a membership in the National Brick Manufacturers' Association, which stands, speaks and works for the industry as a whole, even including the related lines of machinery and supplies. That Resolutions Committee did a good thing in recommending a Committee on Membership and an active, vigorous campaign for new members and a greater N. B. M. A.

WAGES OF THE BRICKLAYERS.

A compilation of wage schedules for bricklayers given in the monthly bulletin of the Building Construction Employers' Association of Chicago, shows an average of about 87½ cents an hour. The lowest schedule given in the list of a number of cities is that of 62½ cents at Toledo, and the highest shown is 90 cents in Milwaukee, Cincinnati and Pittsburgh. The Chicago rate is given as 87½ cents. In connection with this it is said that in some of the cities listed a demand is being made for a higher wage schedule.

SOME BUILDING COMPARISONS.

From data in hand it seems that building operations in the principal cities of the United States for the calendar year 1918 totaled $490,000,000, compared with $816,000,000 in 1917, and $1,133,000,000 in 1916, which was a record year in building activity. During 1918 the curtailment in private building was just about balanced by government building at camps, forts, etc., so the building business as a whole did very well, but private and general building is just about a year behind and should be due for busy time for two years at least.

LOCAL ORGANIZATIONS.

While it has heretofore been the policy of the National Brick Manufacturers' Association to encourage and assist in local and special organizations, it is felt that the present situation calls for a more active encouragement of such organizations. Recognizing this fact the Committee on Resolutions at the Pittsburgh meeting offered a resolution that a Committee on Local Organization of Manufacturers of Brick and Allied Products be permanently established, the secretary to be a member of and secretary of this committee. This committee is to be prepared to furnish printed matter, constitutions and other information that will assist in forming such organizations, and to give personal attention to the promotion of such work. The need for more and better local organization for the sake of better information and for the working out of local problems is so readily apparent that it is hoped this committee may be formed and get down to active work right away. Meantime, those who feel the need for local organization in their territory are asked to write the secretary that he may be informed of the needs and prepared to act accordingly.

AMERICANISM.

One of the needs of the day which is already receiving some measure of attention is to educate and to teach the real meaning of Americanism to those foreigners among us who do not know our language. We are told that there eight and a half million persons in the United States who are unable to read an American newspaper. Some of these are illiterate natives, but many are foreigners. And in addition to these who need educating in our language, there is another portion able to read and understand who for lack of definite instruction have no conception of what true Americanism means. It is among these people that Bolshevism is bred and dreams are had of doing here some of the deplorable things that mark the present era in other countries. It is a time to put an end to such conditions, a time when it is the duty of every right-thinking man to understand for himself and help teach to others the meaning of true Americanism.

A NEW GOVERNMENT BOARD.

With the approval of the President, Secretary of Commerce Redfield, who is very deeply interested in the resumption of industrial and business activity, has created in his department a new government board, known as the Industrial Board of the Department of Commerce.

The work of this board is to be purely advisory, and the idea is to call into consultation for advice and co-operation representatives of various industrial lines. The purpose in general being to stimulate industrial activity, stabilize prices and help promote an era of general prosperity.

It is thought that in addition to giving assistance to industry in reaching satisfactory price bases the board ought to be able to give valuable advice in regard to such questions as the disposal of surplus war material, it being desirable to accomplish this with as little adverse effect as possible.

George N. Peek, formerly vice-chairman of the War Industries Board, is chairman, and this new board has the assistance and co-operation of the Council of National Defense.

PRICES AND WAGES.

The main contentions of the day in building promotion circles center around the matter of prices of material and wages. All willingly admit that neither wages nor material prices should be returned to the low level of prewar days, but there is strong argument for cutting off some of the top and getting down to a new peace basis.

Nearly everywhere prospective builders complain that the prices of building material are too high, and that the estimated cost of building under existing conditions is discouraging. And among those speaking with authority, Secretary of Commerce Redfield has advised industry to make price reductions, to make them drastic and in one lump to a point where they can be stabilized and will encourage active buying.

In a number of lines in the building material world there have been price reductions, and at this writing the line of price reductions is extending somewhat. Also it includes brick and clay products, which in some instances are cut pretty sharply in the face of high wages and high coal cost. Some lines still hold to top prices, and on all sides it is pointed out that to maintain the high wages of the day high prices must prevail, and so the argument goes, on and on.

But we are gradually getting down to brass tacks in the matter of prices, and now departments at Washington are realizing and pointing out that labor, too, must take its part of the burden of readjustment and come down a bit out of the high notches to a more reasonable level, and this is one of the best signs of the times.

BUILDING AND LOAN ASSOCIATIONS.

Even the government at Washington is now recognizing and commenting upon the fact that building and loan associations are great factors in the development of home building. And the interest is such that there is now talk of plans for

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federal financing of those in need of more funds for loaning.

The fact of the matter is that in the larger towns and cities something like 90 percent of the individual homes of the average citizens are built through the aid of building and loan associations, and in addition to loaning money they have set the pace and the standard for trust companies and other financial institutions so that they too will now furnish building capital on much better terms than a decade or so ago.

It logically follows that every man interested in the building industry should also take an interest in the development and welfare of building and loan association, and in many cases give time and effort to this purpose. It not only means better business, but it also means better homes and better citizens.;

And now comes the Federal Farm Loan banks which will do on a more pretentious scale for the farmer what the building and loan associations have been doing for the wage earner and the salaried man make long time loans at modest interest. These do not call for assistance in financing, but there is a chance to help by encouraging the local organizations necessary to obtain the benefit of these loans. And by helping with these things each man is helping himself and benefitting his community.

THE ANNUAL N. B. M. A. BANQUET.

We are disappointed in not being able to publish in full in this issue the proceedings of the N. B. M. A. banquet at Pittsburgh. It has been found necessary to defer publication until the next issue of The Clay-Worker, in order to enable some of the speakers to revise their remarks which were extemporaneous, or at least made without manuscript or notes. It was generally conceded that the speeches were of exceptional interest and consequently there is a rare treat in store for our readers who appreciate after-dinner oratory, especially of a patriotic character.

WITH THE NEBRASKA BRICK & TILE MANUFACTURERS

The Fourth Annual Meeting of the Nebraska State Association of Brick & Tile Manufacturers was held at the Lincoln Hotel March 4 and 5. Practically the entire membership was in attendance. The general spirit was quite optimistic, a busy season being anticipated by every one, due to the construction of government buildings, the good homes and the "Build Now" propaganda. Wednesday noon the delegates were the guests at luncheon of the Lincoln Chamber of Commerce. The Governor of the state was introduced and spoke in a very cheerful vein relative to the building prospects throughout the states, particularly the improvement of roads and public highways. He voiced the sentiment of Nebraskans apparently when he declared that an era of great prosperity lies ahead of us.

The convention sessions were devoted largely to informal discussion of various phases of the business now uppermost in the minds of clayworkers. The Association unanimously agreed to adopt the open price plan and a committee was appointed to perfect arrangements accordingly. Mr. B. W. Ballou was present and explained to the delegates the general scheme and the advantages incident to same.

Other important topics were considered which for lack of space cannot be given in this issue, but will be laid before our readers in a subsequent number. The annual banquet proved a very enjoyable occasion, being quite informal. Secretary Frank I. Ringer served as toastmaster and injected a lot of pep and jollity into the function. Theodore A Randall, secretary of the N. B. M. A., was the guest of honor. The officers elected for the ensuing year are, president, John W. Turner, Seward; vice-president, Hugo Polenske, Hastings; secretary-treasurer, Frank I. Ringer, Lincoln. These gentlemen, with A. H. Farren, of Lincoln, O. R. Martin, of Lincoln, and Fred Smith, of Omaha, constitute the Executive Committee for the ensuing year.

Those in attendance:

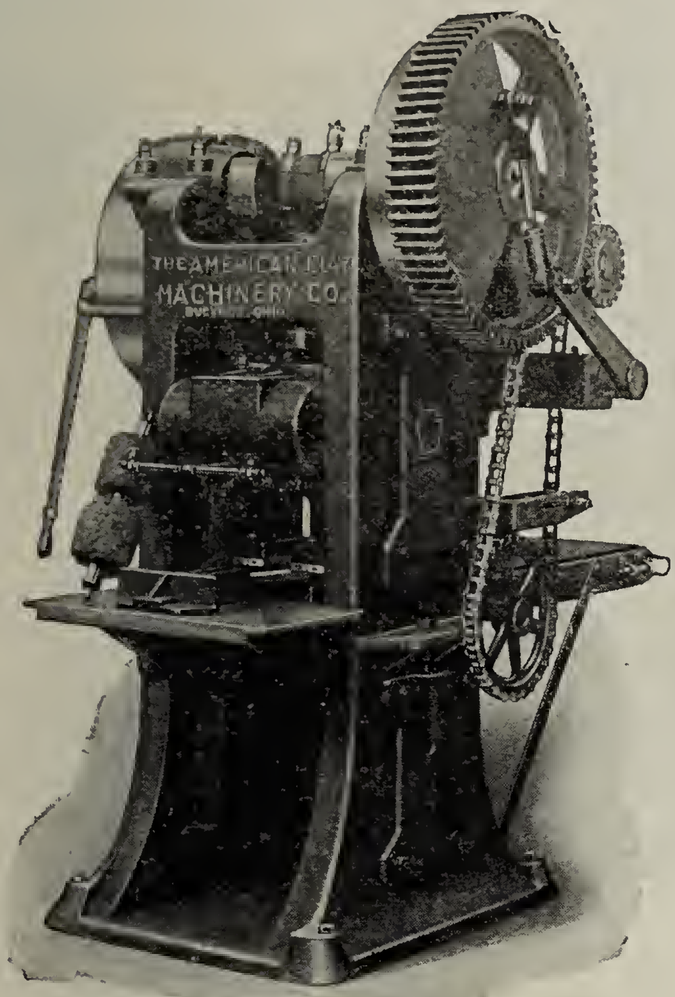
J. F. Smith, Smith Brick Co., Omaha, Nebr.
B. W. Ballou, Buff Brick Mfg. Co., Buffville, Kan.
Winfield Stein, Western Brick & Supply Co., Hastings, Nebr.
W. N. Farlow, Beatrice Brick Works, Beatrice.
Hugo Polenske, Polenske Bros.-Schellak Co., Hastings.
H. Lloyd Hansen, Polenske Bros.-Schellak Co., Hastings.
J. W. Turner, Seward Brick Works, Seward.
J. W. Lanning, Western Brick & Supply Co., Nebraska City.
C. B. Hutton, Western Brick & Supply Co., Hastings.
F. G. Burnham, York Brick & Tile Co., York.
S. A. Kammerlohr, Yankee Hill Brick Mfg. Co., Lincoln.
H. H. F Waterman, Builders Brick Mfg Co., Hooper.
A. H. Farrens, Western Brick & Supply Co., Lincoln.
O. R. Martin, Lincoln Brick Works, Lincoln.
S. W. Scrannage, Western Brick & Supply Co., Holdrege.
J. E. Perry, Western Brick & Supply Co., Hastings.
M. Stein, Western Brick & Supply Co., Hastings.
R. K. Hursh, University of Illinois, Urbana, Ill.
J. W. Lazear, The Brown Instrument Co., Chicago, Ill.
T. A. Randall, National Brick Mfrs. Ass'n., Indianapolis.
Joseph W. Tomek, T. R. Brick & Material Co., Table Rock.
Newton E. Tomes, Main Belting Company, Des Moines.
Harry Baumgart, Lincoln Brick Works, Lincoln.
D. Menke, Lincoln Brick Works, Lincoln.
B. Koehler, Geneva Brick & Tile Co., Geneva.
Joe D. Dallas, Western Brick & Supply Co., Hastings.

WESTERN CLAYWORKERS' ASSOCIATION.

The annual meeting of the Western Ontario Clayworkers' Association was held at London, Ontario, February 19 and 20. At the close of the convention the following officers were elected: President, Calvin S. Parker, London (second term); first vice president, Alfred Wehlan, Cairo; second vice president, Robert McDonald; secretary, Gilbert Armstrong; director, William McCredie.

MARION POWER PLANT EQUIPMENT.

The above is the title of an unusually meritorious catalog issued recently to the trade by the Marion Machine, Foundry & Supply Company, of Marion, Ind. It contains numerous illustrations and interesting descriptive matter relative to their Shear-Kean grates, Marion boilers, hand-fired stokers, shaking grates, forced draft blowers, lime kiln fronts, Alexander water gauges, smokeless furnaces, portable kiln grates, stationary grates, boiler fronts, dead plates and soot blowers. They will gladly mail this to any interested party. See ad on page 335.



American No. 292 Repress

American

No. 292 Repress

There's a reason why the American No 292 Repress is giving universal satisfaction. The reason is that it is designed and built with the object of making it a success.

Those who are using it will tell you of its dependability. We will refer you to them on request.

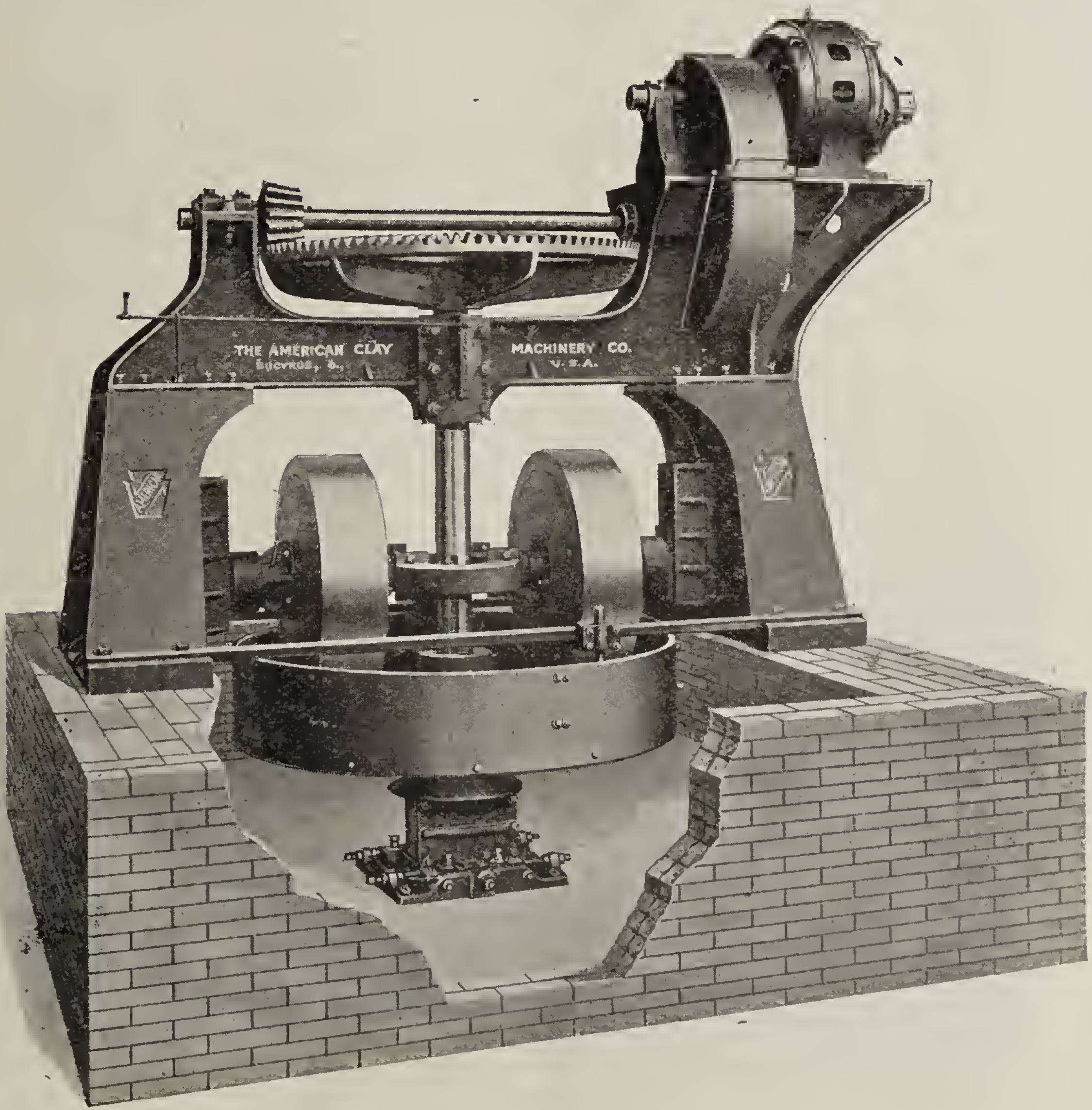
Get printed matter on the No. 292 Press. Its free.

We also build a complete line of Clay Working Machinery. Our new catalogue will be sent on request.

American
No. 335
Wet Pan.

Where it is desired to have the sides of your pan setting take the place of full length side frames we can recommend our No. 335 Pan. It is a splendid representative of our High Quality Line of Clay Working Machinery. Let us send you a bulletin giving details.

THE AMERICAN CLAY
MACHINERY CO.
Bucyrus, Ohio.



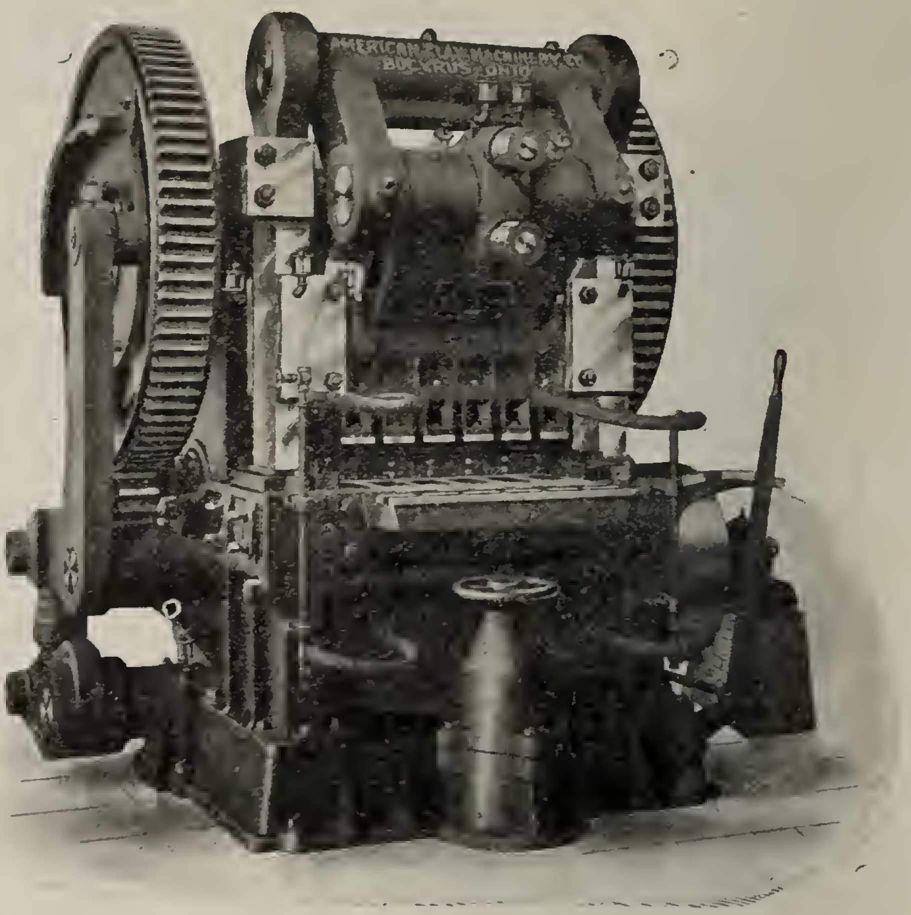
American No. 335 Wet Pan

American
No. 599 Press

This No. 599 American Dry Press is probably the most ample machine of its kind on the market.

It is built with a view to quality and satisfactory operation.

In design, material and workmanship there is nothing left undone which would add to the quality of the 599. The complete detail is given in our 599 Bulletin. Send for it. We build everything required in a clay plant.



American No. 599 Six-Mold Dry Press Brick Machine

The American Clay Machinery Co.
Bucyrus, Ohio

Unloading and American Hardening Cylinder

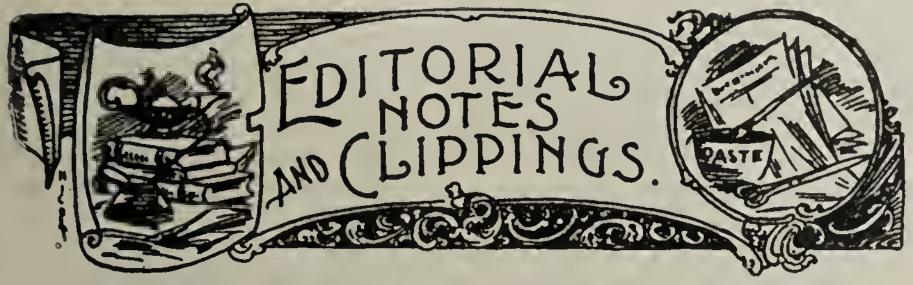
SAND LIME BRICK MACHINERY.

At our Willoughby factory we build a com-line of dependable Sand-Lime brick machinery.

Hardening Cylinders Presses, Grinding Pans, Mixers, Cars etc.

Send for our Sand-Lime catalog.

The American Clay Machinery Co.
Willoughby, Ohio.



EDITORIAL NOTES AND CLIPPINGS.

The Radford Supply Company, of Radford, Va., is in the market for brick machinery, and would like to receive prices, etc.

The plant of the Murphysboro Paving Brick Company, Murphysboro, Ill., is now in full operation, having been started about the middle of February. Indications are good for a busy season for the company.

The National Shale Brick Company, of Martinsburg, W. Va., has been incorporated with $250,000 capital stock. The company will erect a large plant near Martinsburg. F. Vernon Aler is president and treasurer; James N. Dyson, vice president, and W. E. Crawford, secretary and manager.

The Sterling Wheelbarrow Company, of Milwaukee, is preparing to more completely serve the requirements of their customers by a large addition to their plant. This new addition will contain as much floor space as their present plant now occupies.

A real bargain in the way of a brick plant is offered by "Iowa" in our For Sale columns. The plant is well equipped and well located, with good railroad facilities. Any one interested in locating in Iowa will do well to get in touch with the party advertising same.

B. E. Welsh has purchased the plant of the Acme Fire Brick Company, at Rome, Ga., and will operate same under the name of the Kentucky Refractories Company. The plant has not been in operation for more than a year, but Mr. Welsh will overhaul the plant and increase the capacity to 35,000 per day.

Members of the N. B. M. A. who met Mrs. Georgianna Buckley, of Montrose, Colo., at various conventions when Mrs. Buckley was in the brick business, will regret to learn that her son John, who was a lieutenant in the aviation branch of the service, was killed in France just three days before the armistice was signed.

Now that the season is opening up, this is the time to consider improvements of all sorts in clay products, and Ricketson's mortar colors, which are guaranteed against fading or washing, manufactured by the Ricketson Mineral Paint Works, Milwaukee, Wis., are in demand. They come in red, brown, buff, purple and black, all backed by the company's guaranty of "fadeless." Interesting printed matter may be had by addressing the company. See ad on page 316.

Charles A. Bloomfield celebrated his seventieth birthday at his home in Metuchen, February 25. A feature of the day was the presentation to Mr. Bloomfield of a beautiful silver loving cup by a number of the officers of Camp Raridan, located near the Bloomfield home. During the stay of the soldiers at Camp Raridan Mr. Bloomfield has always kept open house for them, and now that the men are about to return to civilian life they took this occasion to show their appreciation of Mr. Bloomfield's kindly hospitality. Among the host of friends who assisted in the celebration was M. E. Gregory, of Corning, N. Y., who was East at the time on a business trip.

It would seem that the wheelbarrow was one thing in which there are no variations, and yet such is not the case. A case in point is the Sterling wheelbarrow, which has ten spokes in the wheel, while all other wheelbarrow wheels have eight spokes. This presents a big credit for Sterling, as any user of wheelbarrows will readily realize that by adding two additional spokes to the wheel construction, it will greatly strengthen the weakest part of the average barrow. The Sterling wheelbarrow is manufactured by the Sterling Wheelbarrow Company of Milwaukee.

Mr. Walter A. Zelnicker, president of the Walter A. Zelnicker Supply Company and affiliated companies in St. Louis, has just appointed Mr. Cline B. Finnell as his private secretary. Mr. Finnell, who recently returned from the Officers' Training Camp at Camp Pike, Arkansas, was formerly traveling secretary to the general superintendent of the C., B. & Q. Railroad, and later private secretary to Mr. Clarence H. Howard, president of the Commonwealth Steel Company. Mr. Finnell is president of the Junior Chamber of Commerce of St. Louis, an organization of 1,000 members of younger business men of the city.

E. A. Bowman, secretary of the Columbia Fire Brick Company, of Canton, Ohio, has been elected president of the Canton Chamber of Commerce.

The Crystal Spring Clay Product Company's plant at Kimballton, Ia., is running full handed, and the prospects are bright for an unusually good season.

The Twin City Brick Company, Capital Bank Building, St. Paul, Minn., is in the market for a number of second-hand 28-inch double-deck dryer cars. Prefers to correspond with parties within reasonable shipping distance.

The Southern Face Brick Manufacturers' Association was recently organized at a meeting held in Atlanta, Ga. B. Mifflin Hood was elected president of the association and L. T. Bolster, of the W. G. Bush Brick Company, Nashville, Tenn., is secretary and treasurer.

The Poston Paving Brick Company, of Crawfordsville, Ind., one plant, and the Burton-Townsend Company, of Zanesville, Ohio, two plants at Zanesville and one plant at Ashtabula, Ohio, have become licensees of the Dunn Wire-Cut-Lug Brick Company, of Conneaut, Ohio, and will engage in the manufacture of wire-cut-lug paving brick.

The plant of the American Clay Machinery Company at Bucyrus, Ohio, is now running on a ten-hour basis. The matter was submitted to a vote of the employes, with the result that since February 1 the men have been working on a ten-hour schedule for five days in the week and five hours for Saturday.

High-powered rifles, operated by crack marksmen, were used to remove a portion of a dangerous smokestack, 165 feet high, at the plant of the Richards Brick Company, at Edwardsville, Ill. The stack has been a menace for some time, owing to its damaged condition from being struck by lightning. It was necessary to reduce the height of the stack 20 feet and recap it, but, owing to its dangerous condition, workmen could not be sent to the top. The problem was solved by picking off the loose fragments by bombarding them with rifles.

PENNSYLVANIA COMPANY TO MANUFACTURE CLAY MACHINERY.

James P. Martin, who for many years was associated with the Henry Martin Brick Machine Manufacturing Company, and later with the American Clay Machinery Company, is now connected with the Lancaster Iron Works, Lancaster, Pa., as manager of the clayworking and foundry machine department. This company will produce a complete line of stiff mud clayworking machinery, and is to be congratulated on having a man of Mr. Martin's experience associated with them.

NEW CONCERN TAKES OVER OLD PLANT.

The Anderson Foundry and Machine Works, of Anderson, Ind., which was established in 1872, has been taken over by the Anderson Foundry and Machine Company, and the capital stock increased to $1,200,000. W. N. Durbin, who has been associated with the old concern for the last thirty years or more, is at the head of the new company, being president and general manager. The capacity of the plant will be greatly increased. In addition to manufacturing a complete line of soft mud brick and tile and sand-lime brick machinery, they manufacture oil engines, tinplate machinery and gray iron castings.

JOHN MORONEY MEETS WITH A MISHAP.

As is his wont, John Moroney, "The King of Ireland," will celebrate St. Patrick's Day, but in an unusual manner for John. It will be a home celebration, for he is confined to his home with a broken arm, the result of an accident. Like the little "glad girl," he is glad it is no worse. He hopes to be back at his desk in the Great Northern building, Jackson Boulevard, Chicago, in the very near future, and be able to extend the glad hand to all visitors, and they are very numerous, the office of the Chicago Brick Machinery Company being the mecca of many clayworkers who visit the Windy City.

OFFICIAL REPORT.

(Continued from page 282.)

Read your trade magazines thoroughly. They are making an earnest effort to educate along conservation lines. Read the books available on the use of fuel.

Consult with Industrial Furnace Section concerning problems which may appear perplexing.

It may be of interest to you to know of some of the real conservation effected by the Administration during its short life. These figures are principally interesting because they show that large economies can be effected without additional equipment and also because if it is possible to make such a saving with the inadequate field force at the disposal of the Administration in a few months, the possibilities are staggering if the work is continued and directed by a permanent organization provided with sufficient funds to carry on the work.

The saving effected by the railroads of the country during the middle six months of 1918 amounted to 1,000,000 tons. This was brought about principally by appealing to the engineers and firemen to be more economical and thus help win the war. You all know from observation how much further such conservation could be carried. This figure is only 1.3% of the total fuel consumed by railroads.

Incomplete figures showed that 3,500,000 tons of coal was actually saved on the steam plants during the same period. Taking into consideration the fact that the conservation work of the Administration had not been systematized at that time and that only isolated sections of the eastern part of the country reported, some idea of the possibilities can be gotten. This saving represents 4.5% of the total fuel used for steam purposes on manufacturing plants. A conservative estimate is that the possible saving would amount to from 12% to 15%.

An interesting item is that the day-light saving plan effected a saving ranging between 1,000,000 and 1,500,000 tons.

The general adoption of the skip-stop plan throughout the country saved 350,000 tons of coal. The saving in the city of Detroit alone was 21,000 tons.

The substitution of hydro power for steam under orders from the Administration effected a saving of 100,000 tons in six months. It is estimated that if hydro power were developed to the fullest extent in the East with the idea of supplying the larger cities, each of the large eastern cities would save 1,000,000 tons of coal annually.

The shutting down of uneconomical, isolated steam-electric plants saved 136,000 tons of coal in six months without in any way effecting the power users, they being supplied by larger economical plants. As this work only barely got under way an idea may be gotten of the possibilities.

Many other economies were effected, the aggregate of which would run the total actual saving into large figures. It must be borne in mind too that the conservation program of the Fuel Administration had never gotten under way in a systematic manner. Like other branches of the Government it would probably have been working smoothly had the war lasted two or three years longer. (Applause.)

General Discussion.

President Robb: The discussion of the paper was to have been led by our ex-President Fritz Salmen, who is operating a continuous kiln and could have given us some interesting information, but he was taken ill last week and is now at Hot Springs. We will be glad to hear from any of the members who care to discuss this important topic.

J. Fred Smith, Omaha, Neb.: I am a user of a continuous kiln, and have been for ten years. We used to burn in old scove kilns and we find a saving, I should say, of fifty or sixty per cent. of fuel. The only fuel we have is coal and we use a slack coal either from Wyoming, Kansas or southern Illinois. Our freight rates are very high, but the coal is very cheap. Sometimes we buy coal for twenty-five cents at the mine at one place in Wyoming, but the freight is $3.50, so we don't get it so cheap after all. The continuous kiln is used entirely in Omaha, and it is the one kiln that doesn't make smoke. Our plants are all in the city, and the economy is fixed at 50 or 60 per cent. over the other kiln.

President Robb: What is the next on the program, Mr. Secretary? Mr. Smith has certainly given some good arguments in favor of the continuous kiln.

Secretary Randall: The final number on the program was an informal discussion by Mr. M. E. Gregory, of Corning, N. Y., on "Short Cuts in the Operative End of the Business." Mr. Gregory had something in mind along that line, but was called home yesterday, but said he would make up for it next year. There are one or two questions that were sent in by members looking for information. The first is

Questions for Discussion.

"What is the best length for a progressive tunnel dryer?" I presume the gentleman is going to build a tunnel dryer and wants to know how long to make it.

J. Fred Smith: I would say 125 feet.

Marion Blair: It depends on sensitiveness of his clay, and how fast he could move it into the high temperature, and how long it would have to remain in the cooler end of the dryer. Ordinary clays and shales can be put through a dryer in twenty-four to thirty-six hours, and the length for a capacity of say 40,000 of a twelve-track dryer would run about fourteen car lengths. That would be a little over 100 feet inside the dryer. In building a new dryer he should allow additional length at either end of the dryer to store at least two cars on each track at the receiving end and in the cooling shed at the lower end of the dryer sufficient length to receive from three to five cars.

Auger Machines for the Hudson River District.

Secretary Randall: The next question is, "Can the auger machine be adapted to the Hudson River clays?"

Mr. Hammond: I would like to have that answered. I am thankful to the man who asked that question. I asked Mr. Penfield some years ago if he could do anything for us, and he answered "No." Our material is of such a nature that it requires such a mixture and we haven't found it profitable yet, and I would be very grateful if someone would tell us how it can be done, remembering always our clay is mixed with sand and coal dust, and the sand perhaps deflects the wire when the cutting machine comes over and makes a jagged edge.

Frank McClellan, New London, Ohio.

Marion W. Blair: One thing is undoubtedly true, that along the Hudson River clay could be found which would work with an auger machine, but it might make an exceeding rough brick as it does in Chicago. The mixing of the coal dust or sand in the auger machine is a very little matter because that is done in Chicago all the time and at Philadelphia and various other places. Sand is mixed with the clay. If sand can be mixed at one point and the coal screenings in another they can both be mixed if necessary. The difficulty in making a stiff mud end cut brick, you would have to educate your whole market to take the brick. The Chicago people have educated the architects to take their bricks as they make them. The maker of the stiff mud brick in the eastern market might have trouble in building up his market, because being made out of rough clay and made on a machine in a rapid manner would produce an exceedingly rough brick. And it might be more difficult to burn the coal after you put it in by that process. Because in a stiff mud process you produce a brick with a hard skin on the outside of the brick through which the gases of combustion must pass, such a skin might not permit such a gas to pass through and thus cause a bloated brick. It occurs occasionally in other places when the brick are burned too rapidly and produces a black core, but in Chicago that has been overcome very largely because the clay is open and the

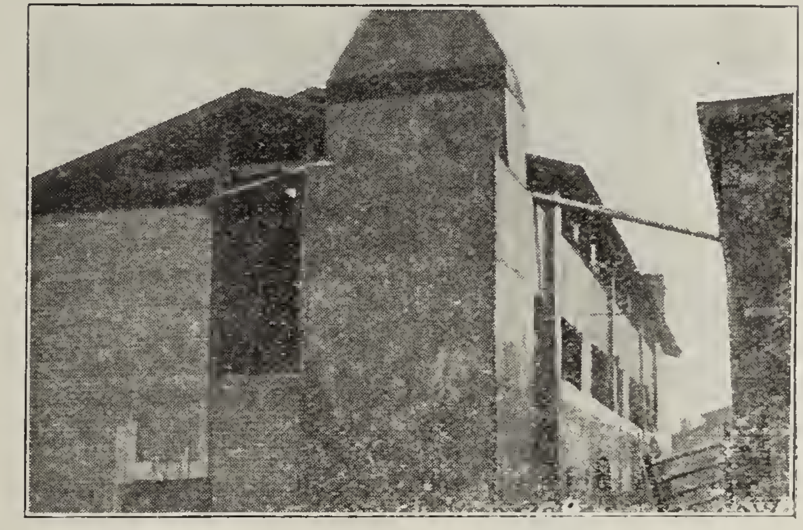
(Continued on page 308.)

J. B. OWENS

Railway Tunnel Kilns Use

INTERNATIONAL PRODUCERS

Top View of Owens Kiln



Gas Producer House

Why not Adapt

INTERNATIONAL PRODUCERS AND BURNERS

To Your Brick, Tile or Pottery Kilns

International Clay Machinery Co.
DAYTON, OHIO

OFFICIAL REPORT.

(Continued from page 306.)

gas passes through. That may be one of the reasons for the failure of the stiff mud machine in the eastern clays. The question is not merely a mechanical one of getting the clay through the machine or forcing it through the die or the auger. There are a dozen problems behind or ahead of that point which must be solved before you begin to manufacture brick on the stiff mud machine in the Hudson River district. Perhaps that is the reason why it has not been pushed in that neighborhood.

Mr. Hammond: My memory is refreshed that about thirty-five or more years ago the Chambers machine was introduced on a very large property to manufacture end cut brick. The clay and material seemed to lend itself to that type of manufacture. What refreshes me now is that Mr. Blair with his practical mind speaks of the inability to market the brick. These people spent a great deal of money and did not market their brick. That experience was forgotten after ten or twelve years, and up in the district where I am located in Newburgh Bay another concern started with an end cut machine. There was a very great boom in brick at the time, and those brick were sold until that boom was over, and then there was nothing more doing. Whoever asked that question has, like myself, evidently overlooked or forgotten those incidents, but if his mind will hearken back to those times he will recall them. I think the difficulty would be in getting a market for them. I member being in Chicago some years ago and witnessing a great setting arrangement and other improvements which the progressive Chicago manufacturers had installed, and in getting about with some one of the manufacturers I saw their brick at the kiln being loaded, and I said, naming a friend of mine who is a Chicago builder and operates very largely in New York, "Is he doing anything here?" "Oh, yes, doing a lot of work." "Where does he get his brick?" "He gets them all here." I said, "Can't he get them anywhere else?" "Why?" "Well," I said, "in New York he is the most chronic kicker on quality we have." The man said, "He has to take these, he can't get anything else, so he has stopped complaining and takes what we send him." I said, "In New York he would not take these if we sent them to him."

Mr. Weber: Mr. Blair said things about our Chicago brick. We are not afraid the city of Chicago is going to fall down. It is going to last just as long as the rest of them. As far as shipping and selling is concerned, there are manufacturers one hundred, two hundred and three hundred miles away who complain because we put brick in their territory. (Laughter.)

Mr. Smith: As you must all know there are different types or kinds of stiff clay brick machines, I presume the gentlemen have been talking about the ordinary auger machine. There is an entirely different type of machine used by Mr. Miller at his brick plant at Washington, D. C. Mr. Miller is here and can tell you all about it. It is what is known as the wheel machine. It is used exclusively in the Washington district, but little elsewhere. It makes a very dense brick. I have had two mould wheel Brewer machines. I got the idea of combining the wheel and auger principle. I put the wheel in front of the auger machine and I am making good common brick at the rate of 50,000 per day, and they are good solid brick, better, I think, than the ordinary wire-cut brick and made of loamy or sand clays.

Secretary Randall: The next question reads, "What is the most economical method of digging and handling clay from bank to machine?"

Mr. Hammond: It depends on circumstances.

Secretary Randall: The last question is, "Which is the best method of drying brick—steam or direct radiation?"

Mr. Eisenhart: It depends on the clay.

President Robb: If no one wishes to discuss this question this bring us to the report of the Committee on Resolutions, of which Marion W. Blair is chairman.

Report of Committee on Resolutions.

Marion W. Blair: Mr. President, your Committee on Resolutions desires to present the following report:

A GREATER N. B. M. A.

Whereas, The National Brick Manufacturers' Association in the excellent program of the convention, in the valuable papers presented, as well as in the social functions and the opportunities afforded those in attendance to get acquainted and to consult in regard to the special difficulties encountered in the manufacture of their products, has made it evident to all that the association is maintaining its high standard of education and helpfulness and contributing largely to the advancement of the clay industries of America and deserves the support and co-operation of all manufacturers of structural clay products; and

Whereas, A larger membership would enable the Association to be of still greater benefit to the industry by providing a larger revenue for carrying on investigations into the technical problems involved in the fabrication of clay products, and also to give to the organization greater influence in the commercial affairs of the nation; therefore, be it

Resolved, That the Association undertake immediately an active, vigorous membership campaign and to this end be it further,

Resolved, That a permanent membership committee be created and effective, campaign literature be prepared for its use, that this committee consist of five members, two of whom shall be the president and secretary of the Association; that this committee shall select as many additional members of the membership committee in the various brickmaking sections of the country, as it may deem advisable. That the duties of this committee shall be to solicit and secure applications for membership in the N. B. M. A.

Mr. Hummert: I move the adoption of that resolution.

M. M. Minter, Albany, Ga.: I second the motion.

Mr. Hammond: The one thing I would suggest in that connection is something that was spoken of a day or two ago, and that is that the state vice-president's abilities might be utilized in that very line. The secretary suggested that, and he being the source of all information, I think perhaps he might wish to speak on that point, if it is desirable to incorporate that in the resolution.

Herbert Forester, Cleveland, Ohio.

Secretary Randall: I think the state vice-presidents could be used as a starting point at least, but the resolution, as presented, can be followed out, because the committees will be appointed by the president, and he may appoint state vice-presidents where that is desired.

Motion carried.

Marion W. Blair: Resolution Number 2.

GOVERNMENT AID IN BUILDING.

Whereas, The National Association of Brickmakers of the United States in convention assembled in Pittsburgh, February 5 to 8, have been reliably informed that various executive departments of the United States Government have submitted plans to Congress to absorb unemployed labor in works of public improvement and construction, and that such plans are awaiting action at the present time.

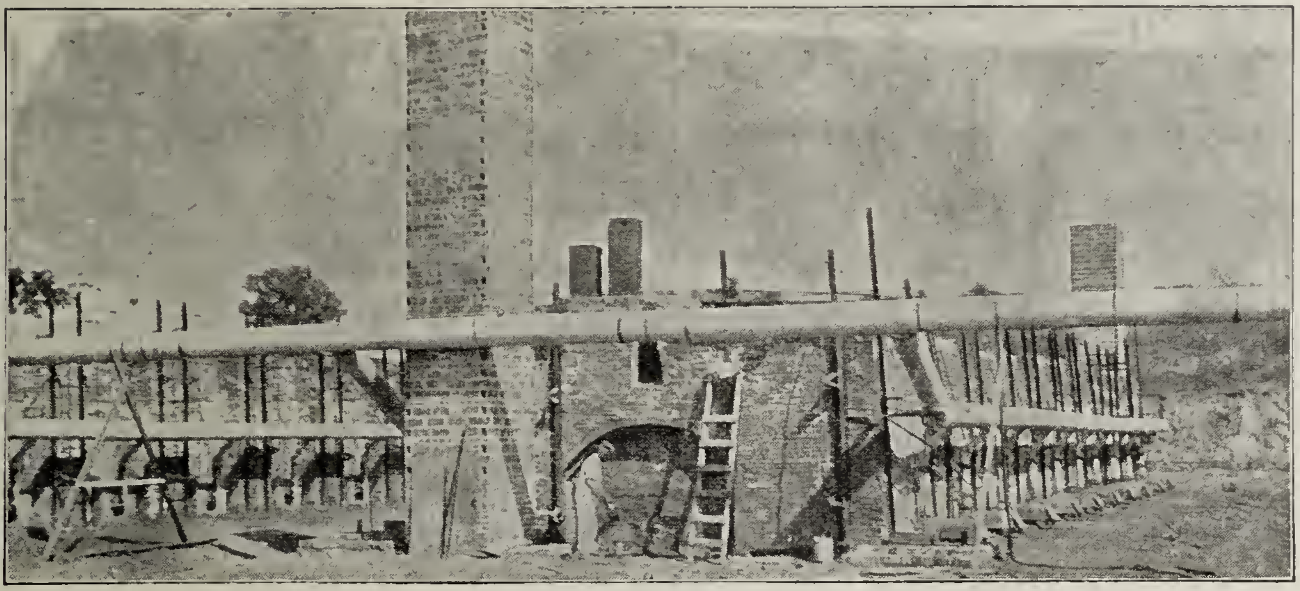
In view of the social dangers that are apt to follow unemployment on a large scale, be it

Resolved, That this Association earnestly urges upon Congress immediate action on these recommendations of the various executive departments, that the threatening dangers of continued general unemployment may be averted, and that the country may be speedily started on an era of production and construction; be it further

(Continued on page 310.)

When The U S Gov't Through Their Bureau of Standards

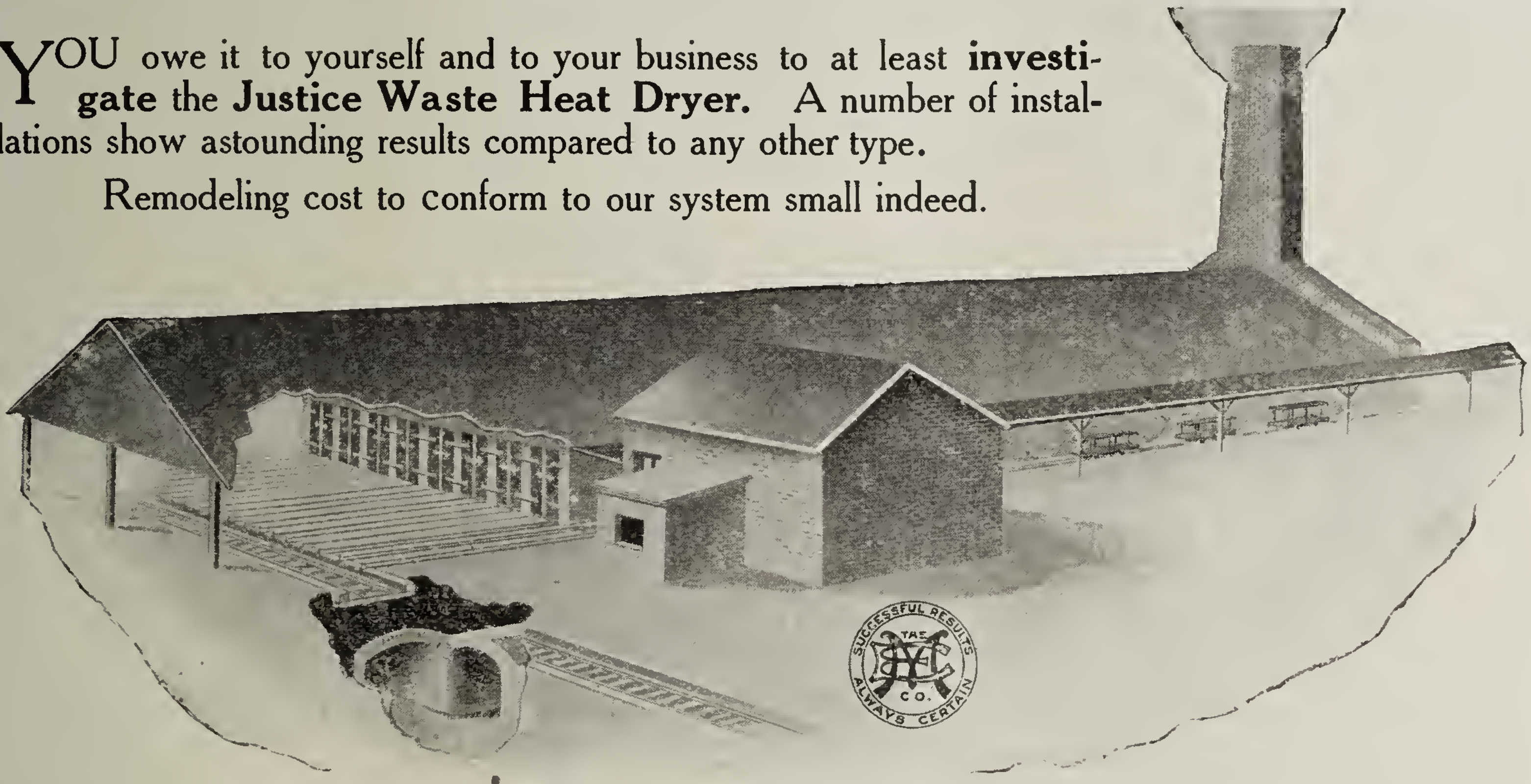
Think Sufficient of The Underwood Gas System To Investigate Then Endorse It



Are You Justified Doing Likewise?

YOU owe it to yourself and to your business to at least **investigate** the **Justice Waste Heat Dryer.** A number of installations show astounding results compared to any other type.

Remodeling cost to conform to our system small indeed.



The Manufacturers Equipment Co.

Dayton, Ohio, U. S. A.

Direct Selling Agents,
J. C. STEELE & SONS,
Complete Line of Clay-
Working Machinery.

PERRY & DUKE,
Canadian
Representatives,
841 College St.,
Toronto, Ont., Canada.

Heat Distribution

is improved by insulating kilns with SIL-O-CEL.

Suitable thicknesses of SIL-O-CEL Insulating Brick retain 75 per cent of the heat that would be lost by radiation from uninsulated kilns.

In addition kilns insulated with

SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

operate under more uniform temperature conditions and increase the output of perfect ware.

Our Engineering Department will advise on the proper application of SIL-O-CEL to either old or new kilns.

Bulletin S-71 gives detailed information and will be sent on request.

CELITE PRODUCTS CO.,

NEW YORK, 11 Broadway.
PITTSBURGH, Oliver Building.
CHICAGO, Monadnock Bldg.
LOS ANGELES. Van Nuys Bldg.
SAN FRANCISCO, Monadnock Bldg.

OFFICIAL REPORT.

(Continued from page 308.)

Resolved, That each member of this Association make a similar appeal to his representative in Congress and to the Senators of his state urging favorable action upon these plans at the earliest possible time.

George O. Berry: I move the adoption of that resolution.

H. H. Stafford: I second the motion.

Carried.

Marion W. Blair: The next is in regard to Pittsburgh as a convention city.

APPRECIATION OF PITTSBURGH AS A CONVENTION CITY.

Whereas, The Thirty-third Annual Convention of the National Brick Manufacturers' Association about to be adjourned, has been one of the most successful of its meetings, both in interest and attendance; therefore, be it

Resolved, That the committees and officials be heartily commended for their splendid arrangements of program and entertainment; that the manufacturers of Pittsburgh district, especially the Pittsburgh Clay Club, be extended the hearty thanks of the Association for their generous entertainment of delegates and guests; that the Chamber of Commerce of Pittsburgh also be tendered the thanks of the Association for its evident interest and for the use of its splendid facilities, and that the secretary be instructed to express to the proper officials of the Chamber of Commerce the appreciation of its efforts in our behalf.

Mr. Hammond: I take pleasure in moving the adoption of that resolution.

Mr. Hummert: I second the motion.

Carried.

Marion Blair: The next resolution—

IN MEMORIAM

Whereas, As death has removed from our ranks the following faithful and beloved members since our last meeting:

W. A. Bailey, Northampton, Mass.
Mr. Witte, Perth Amboy, N. J.
Henry Jason Knapp, Tonawanda, N. Y.
A. R. D. Johnson, Raleigh, N. C.
Thos. B. McAvoy, Philadelphia, Pa.
Clyde C. Murray, Reynoldsville, Pa.
Alfred Yates, Shawmut, Pa.
Geo. J. Schwarz, Milwaukee, Wis.
W. B. Kincaid, Cincinnati, Ohio.

And, Whereas, In their death the Association has sustained an irreparable loss; therefore, be it

Resolved, That this Association extend to the families of these members its sympathy and that the secretary be instructed to communicate to them the sympathy of this Association and a copy of this resolution.

George O. Berry: I move the adoption of this resolution.

J. Fred Smith: I second the motion, Mr. President.

Carried.

Marion Blair: The next resolution—

ALLIED ORGANIZATIONS URGED TO MEET WITH N. B. M. A.

Whereas, We understand that the Common Brick Association and Face Brick Association are about to hold meetings in the city of Chicago; and

Whereas, The multiplicity of meetings entails a heavy expense and unnecessary sacrifice of time, therefore, be it

Resolved, That it is the sense of this Association that the interests of the clay industry could be better served, if the officials of the allied associations could arrange to hold all these meetings in the same city at the same time, and that it is regretted that the invitation extended by our executive committee was not accepted for this meeting. The secretary is hereby instructed to call attention to this resolution to the officials of the Face and Common Brick Associations.

Marion Blair: I move the adoption of this resolution, Mr. President.

Mr. Weber: I second the motion.

Carried.

Marion W. Blair: We felt we wanted to make special mention of the banquet.

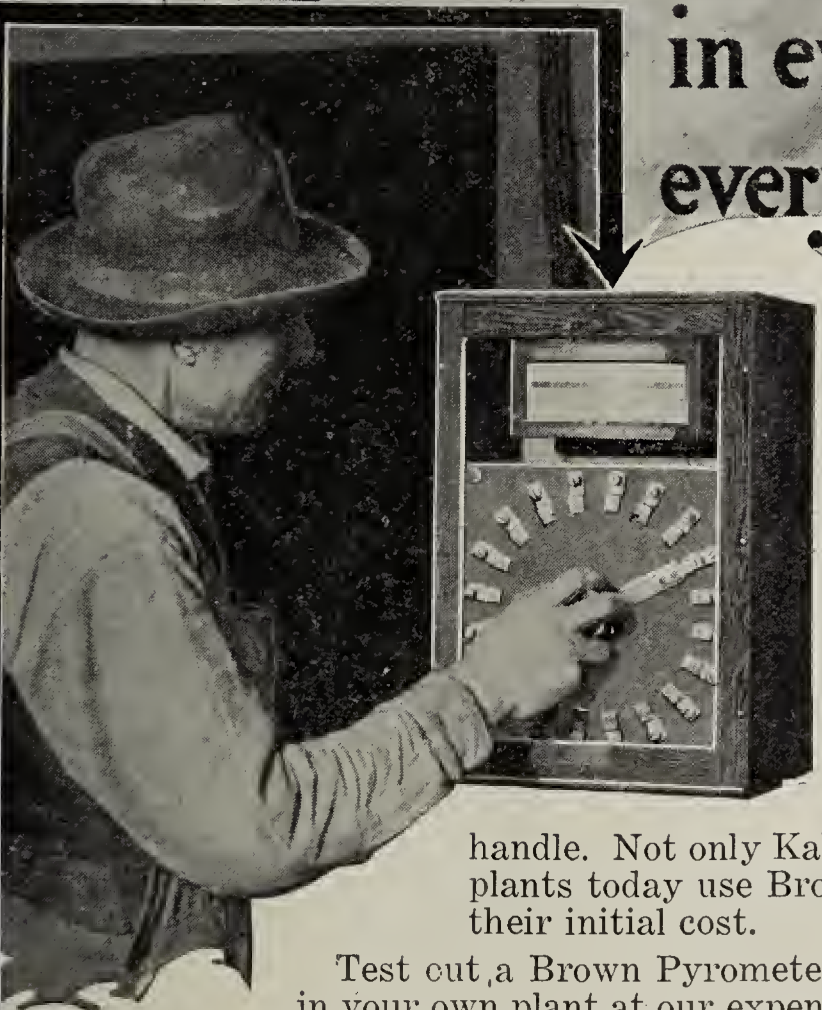
BANQUET SPEAKERS COMPLIMENTED.

Whereas, The speakers at the annual dinner have afforded especial entertainment and inspiration at this time; therefore, be it

Resolved, That this Association does extend to Toastmaster John E. Laughlin, Dr. S. W. Stratton, Hon. Jas. Francis Burke,

(Continued on page 312.)

Put a Brown Thermo-couple in every Kiln and make every "burn" a top-notcher



"CASH IN" to the limit on the inevitable boom in the clay industries.

With a Brown Pyrometer control on your kiln-heats, you know just "where you stand" during the whole "burn." No flashed brick, no spoilage, no loss of time or labor. Above all, you know when to fire and save fuel-waste through over firing—**every pound of coal counts.**

Since 1917, Kalo Brick & Tile Co., Fort Dodge, Iowa, shown here, has checked kiln-heats accurately with their Brown Pyrometer—simply by turning the switch-handle. Not only Kalo, but 80 per cent. of all pyrometer equipped plants today use Browns—and find they pay big dividends on their initial cost.

Test out a Brown Pyrometer equipment under the particular conditions in your own plant at our expense. Write today for complete information to the Brown Instrument Co., Philadelphia, or one of their district offices in New York, Pittsburgh, Detroit, Chicago or St. Louis.

Brown Pyrometers

OFFICIAL REPORT.

(Continued from page 310.)

Dr. C. L. E. Cartwright, Mr. F. W. Price and Prof. Nicholas Vanderpyl, one and all, the sincere thanks and appreciation for their efforts in our behalf.

Mr. Stafford: I move the adoption of that resolution.

Wm. Burgess, Ontario, Can.: I second the motion.

Carried.

Marion W. Blair: The next resolution:

FAVOR LOCAL ORGANIZATIONS.

Whereas, Recent events and especially matters of great interest to the brickmaking industry that have been brought out in our session today with the Building Officials Conference have shown, more clearly than ever before, the desirability and advantages of local organizations of brick manufacturers in every brickmaking center of the United States; and

Whereas, It has been the policy of the N. B. M. A. to encourage and assist such local organization, therefore, with the purpose of more actively carrying out the policy, be it

Resolved, That a Committee on Local Organization of manufacturers of brick and allied products be permanently established of which committee the secretary of our Association shall be a member and of which he shall be secretary. That it shall be the duty of this committee to prepare printed information of methods of procedure and plans of organization, and when requested to assist by the presence of one or more members of the committee in the inauguration of this movement, in so far as the funds of our Association will permit the payment of their expenses.

George H. Clippert: I move the adoption of this resolution.

Jotham Post: I second the motion.

Mr. Weber: I was wondering whether that would conflict in any way with the Common Brick Association, as to what these local organizations are. I would like to know what is meant by local organization.

President Robb: I think that would be developed as the work progressed.

Mr. Weber: Does it mean local organizations of just one material, or of all materials?

Secretary Randall: This is with a view of getting all the brickmakers together in localities where it might not otherwise be done. It perhaps might be well to have this resolution referred to the Executive Committee that they might reach a definite conclusion intelligently, so that the policy of this Association along the lines of harmony and co-operation may be carried on.

Mr. Weber: That is to co-operate with all these organizations, the Paving Brick and Common Brick and other associations? Is that the idea?

Mr. Randall: That is in accord with the idea.

President Robb: I will ask the convention to vote on the adoption of this resolution.

Carried.

Mr. Blair: That completes our report, Mr. President.

Mr. Hammond: I move the adoption of the report as a whole.

Seconded and carried.

President Robb: What other business is there, Mr. Secretary, to come before the convention?

Messages from Absent Members.

Secretary Randall: I have another telegram that will be of interest to many of the members.

St. Petersburg, Fla., Feb. —, 1919.

Theo. A. Randall, Secretary N. B. M. A.

Please express to the convention my sincere regrets in not being present in person to enjoy the fellowship of the members. While absent in the sunshine city, however, my thoughts turn to wish you a successful, profitable and enjoyable convention.

CHARLES J. DECKMAN.

I also have a number of letters from some of our old time members, I am sure you will be glad to hear.

Mr. T. A. Randall, Secretary, N. B. M. A.

My Dear Friend:

As advised you by wire, I have been compelled to forego the pleasure of mingling with my many friends at your annual gathering, which both my wife, daughter and myself regret very much, as we look forward with a great deal of pleasure to these occasions.

I had hoped to be able to patch up my troubles so that I would be able to go to Pittsburgh, but in lieu of that, I am compelled to hurry to Hot Springs, as I am almost past navigating now.

Springs, where I hope to be able to be fully cured of my rheumatism. Please express to all my friends my regret.

I am enclosing herewith $5.00, our annual dues to the Association, and with best wishes for a record attendance and a successful convention, I am,

Yours very truly,

F. SALMEN.

Chicago, January 29, 1919.

T. A. Randall, Secy.

My Dear Randall:

Am very sorry to have to inform you that I will be unable to attend the convention at Pittsburgh. You can readily sense the regret I have in having to so inform you, for you know how I would enjoy meeting and renewing acquaintances with the old members as well as making the acquaintance of the newer ones.

Please give my regards to all the old friends and assure you of my very best wishes for what I feel will be a very enjoyable convention.

Enclosed herewith please find check for membership.

Sincerely yours,

WM. D. GATES.

Albany, N. Y., February 1, 1919.

T. A. Randall, Secy., Pittsburgh, Pa.

Dear Secretary:

The Association is extremely fortunate in being invited to Pittsburgh for their 33rd Annual Convention. I have pleasant recollections of attending the last convention held there. I was then elected vice-president of the Association, an honor I appreciated.

I have enjoyed every convention it has been my privilege to attend. I feel I have many warm friends among its members and wish it were possible for Mrs. Rogers and myself to be with you upon this occasion, being impossible I will do the next best thing —inclose my check for the current year's dues. I trust the meeting will be most successful, with a large representation of members present. Best wishes and kind remembrance to all. In which Mrs. Rogers joins with me.

Sincerely yours,

W. H. H. ROGERS.

Lombard, Ill., February 2, 1919.

T. A. Randall, Secy., William Penn Hotel, Pittsburgh, Pa.

My Dear Randall:

I had planned to be in Pittsburgh this week with you. But I can not make it. I am sorry but it can not be helped. I am inclosing you my check for the renewal of my membership in the N. B. M. A., $5.00.

My best wishes are with you all, and hope you will have the best convention you ever had. If you have a badge left please send me one.

Respectfully yours,

WM. HAMMERSCHMIDT.

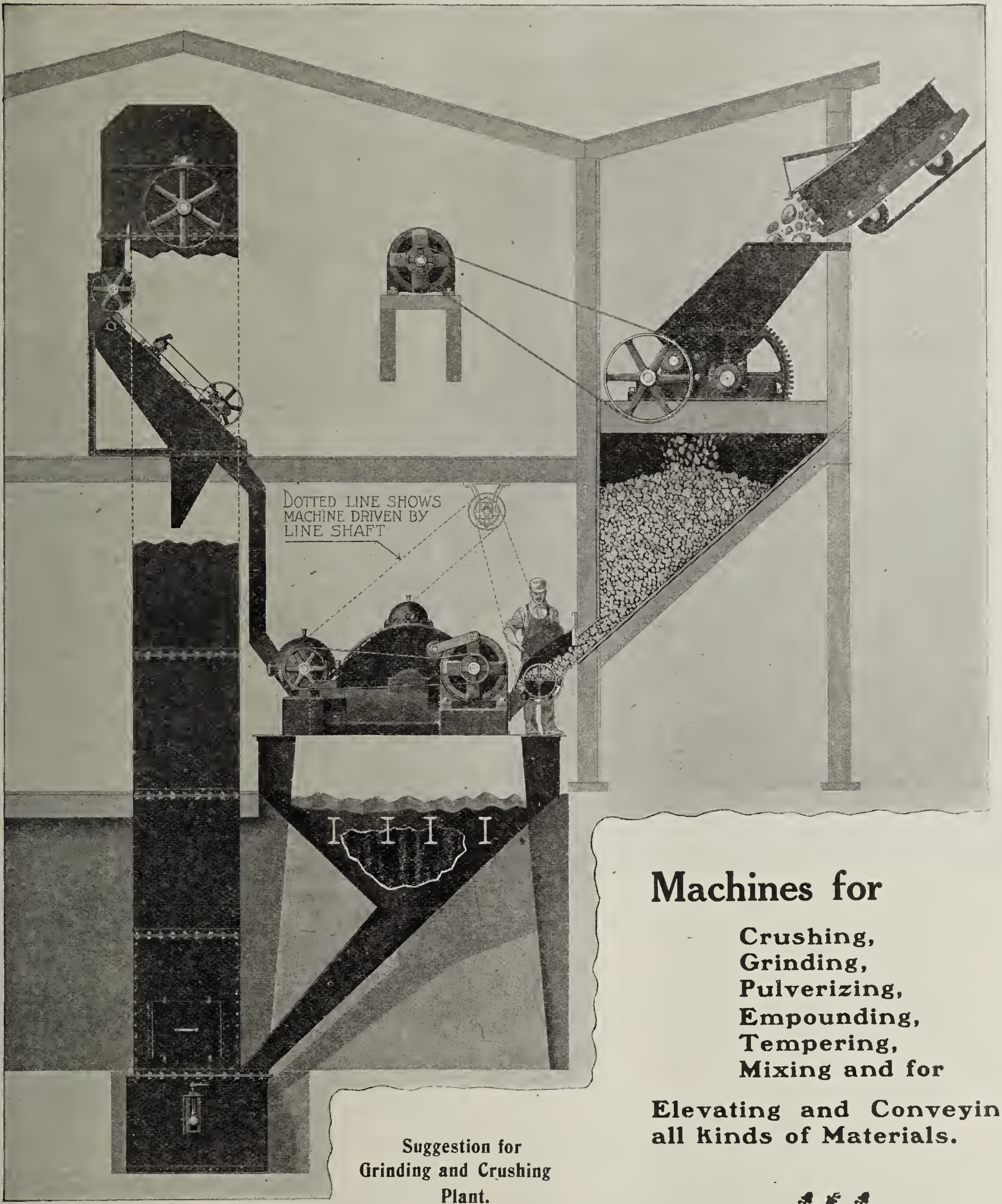
Invitations for 1920 Convention.

Secretary Randall: I am glad to state the Association continues popular. We have invitations from a number of cities to hold our next convention with them. All of these will be referred to the Executive Committee, of course.

Mr. Weber: Don't you think under that resolution passed a while ago, you are to consult with the other organizations and agree on a place?

Secretary Randall: I think so, where that can be done. The secretary wrote to all the other organizations this year and invited them to meet here with us. They had made other plans. The Refractories Association acknowledged my letter and said for obvious reasons they could not meet with us. We have never met west of the Mississippi. St. Louis is as far west as we have gone, and I think we would profit by crossing the river and going to Kansas City sometime, if we can. The western people would come en masse. These are troublous times, conventions of this sort have not been generally well attended for two years, so we hunted a central point. That was why we went to Indianapolis last year, and the selection proved a wise one. If business revives, as we all hope it will—and I am very optimistic—a year hence we may be justified in meeting at some less central point. We may go east or west or south. We have had a standing invitation from the Birmingham brickmakers for many years. Then there is another thing we have considered. I wish we might have a midsummer meeting both for business and pleasure. Meeting but once a year, the meetings are so far apart we are not able to do some of the things we would like to do. We have tried a time or two to have a midsummer meeting at Atlantic City or somewhere else, but for some reason or another the brick men did not seem to take to it at all. They are busy in the summer and don't want to get very far away from home. We did not have any trouble, however, in getting the men to Washington or Atlantic City last summer on war business because that was the business of the hour. Conditions shift and change to such an extent that it is not wise to select a place so far ahead of time, and that is why in our organization the matter of time and place has always been left with the Executive Committee. Do you want to hear these letters of invitation?

(Continued on page 314.)



Suggestion for
Grinding and Crushing
Plant.

Machines for

Crushing,
Grinding,
Pulverizing,
Empounding,
Tempering,
Mixing and for

Elevating and Conveying
all kinds of Materials.

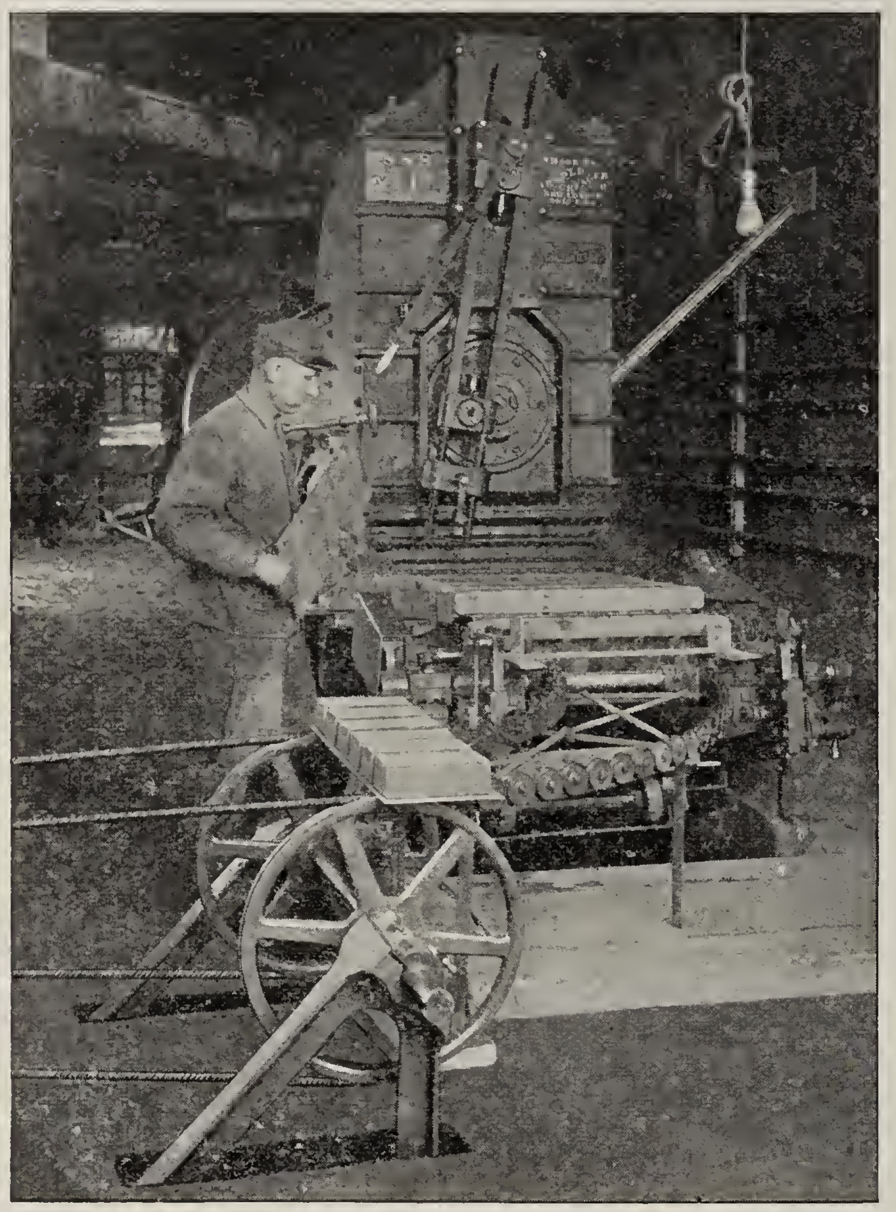
* * *

Steam Presses for Making Sewer Pipe, Drain
Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO., General Office and Works, Wellsville, Ohio

Engineering and Western Sales Office, Monadnock Bldg., Chicago, Ill.

The S. S. S. Special
Automatic Soft
Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

OFFICIAL REPORT.

(Continued from page 312.)

President Robb: I think it would be just as well to have them read.

Columbus, Ohio, January 31, 1919.

Mr. T. A. Randall, Secy., National Brick Mfrs. Assn.

My Dear Mr. Randall;

The War is over, and the consequent deterrent influence upon the holding of conventions has terminated.

This, therefore, is written to remind you that Columbus is yet "upon the map"—bigger and better than ever and has never lost her desire to entertain your organization in convention.

We believe, in such consideration, that no city in all the country, is more advantageously located, or in position to extend you better convention facilities; and we know that no city, in all the country, could hope to proffer you a warmer welcome or a more generous hospitality.

We only ask that you give our claims for the preferment we crave, your fair consideration; and we are then willing to gracefully bow to your determination—be that what it may.

Hoping to hear from you at your earliest convenience, we remain,

Very sincerely yours,
The Columbus Convention and Publicity Association,
JOHN Y. BASSELL, Manager.

Philadelphia, January 27, 1919.

To the Officers and Members, National Brick Manufacturers' Association, Pittsburgh, Pennsylvania.

Gentlemen:

Philadelphia through its Chamber of Commerce sends greetings to your association in its present convention, and a sincere wish that your meeting will be most successful and beneficial.

Philadelphia, the "WORLD'S GREATEST WORKSHOP" and "NATION'S HISTORIC CITY" is today the ideal city for conventions. With three centuries of productive co-operation, sagacity and thrift our city has been richly supplied with facilities and advantages to accommodate assemblages such as yours, both in business and in pleasure, and the Philadelphia Chamber of Commerce therefore, deems it a great honor to extend to the members of the National Brick Manufacturers' Association and its allied bodies, a most hearty invitation to meet next with us in the "CITY OF BROTHERLY LOVE."

A royal welcome awaits you in Philadelphia, the convention city, and we trust that it may be our privilege to serve your associations, and assure you of every co-operation within our power.

Respectfully yours,
PHILADELPHIA CHAMBER OF COMMERCE.
Ernest T. Trigg, President. N. B. Kelly, General Secretary.

Kansas City, Missouri, Jan. 28, 1919.

Mr. Theo. Randall, Indianapolis, Ind.

Dear Sir:

If your organization has not definitely settled upon the city that will have the honor and pleasure of entertaining your members at your next convention, permit the Kansas City Chamber of Commerce to sincerely invite you to name the convention city of the Middle West, Kansas City, Mo.

The well known conveniences of Convention Hall for large or small gatherings and various other halls suitable for meetings; our magnificent and many first class hotels providing accommodations suitable for all, and the points of interest in and about Kansas City, as well as educational features, give us the right, we think, to term this the ideal convention city.

The heart of the nation, with unparalled transportation facilities, makes it possible for an increased attendance over almost any other point one could name as a location for conventions. Our new Union Station, one of the best in the United States, and our active Chamber of Commerce combine to insure every help and co-operation toward the comfort of the visitors.

If you will kindly furnish us with information of your requirements; the character of your organization and its work, the probable number of delegates usually in attendance and other data, it will enable us to ascertain just what we can do for you to make your stay in Kansas City one of profit and pleasure.

Trusting to hear from you soon, I am,

Very sincerely yours,
LOUIS W. BUCKLEY, Manager,
Department of Conventions, Publicity, Etc.
Slidell, La., January 31, 1919.

Presentation of Bulletin Board with Compliments of Hoosier Entertainment Committee.

President Robb: I presume you have all noticed the bulletin board down in the lobby near the elevators. The Hoosier Entertainment Committee had some money left over from their entertainment of the convention at Indianapolis last winter, and it was decided to invest it in that bulletin board, which, so far as I can judge, is a thing of much beauty and utility, and I believe you will all appreciate it as time goes on. It is a permanent thing to be taken to conventions from year to year, and used in making announcements, and on behalf of the Hoosier brickmakers I present it to you with the compliments of the Hoosiers and as a token of their good will, and for the attention you gave them while in Indianapolis, and for the joyous time we had there. Of course, Indianapolis is the hub of the universe, there is no other place like it. You know Mr. Randall comes from Indianapolis, it also gave us James Whitcomb Riley, and the Wallaces, and we have had two or three presidents and would-be presidents, and we hope to give you another president from Indiana, and I hope you will remember him when the time comes. We have so many presidential candidates out there we could not name them all. We want you to come out to Indiana again sometime. (Applause.)

Vice-President Wilson: I would like to move a vote of thanks to the Hoosiers for this beautiful and useful gift.

Seconded by many.

Vice-President Wilson: Our president is too modest to put that question, so I will have to put it myself.

Motion carried.

President Robb: We appreciate that, gentlemen. We have finished our regular form of business, but before we close I think we really ought to have a word from our newly-elected third vice-president.

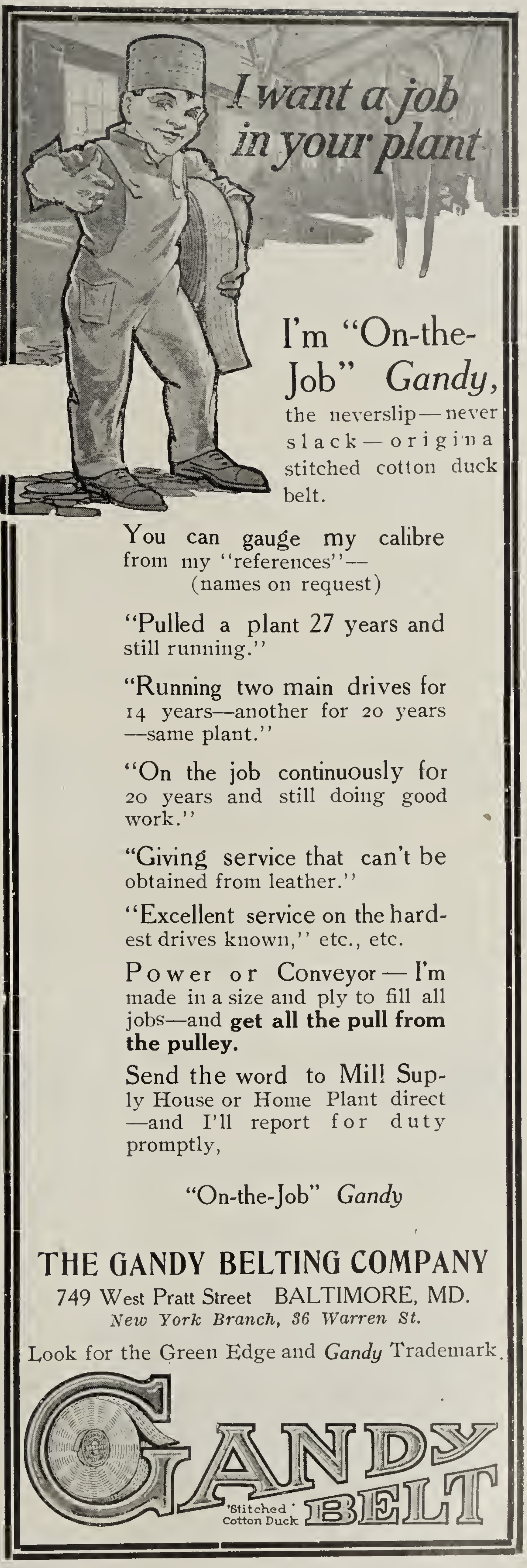
Vice-President Wilson: I don't believe you want to hear me, I will talk to you some other time. I will say, however, that I had a promise from Secretary Randall that my name would not be presented this time for third vice-president for various reasons, and I do not know how he is going to square himself with me. Fortunately, or unfortunately, I had to be out of the city the first day of the convention so I did not have time to make a protest. When I got back and some of the fellows began to congratulate me I did not know what they were talking about, and then it began to dawn on me that you had deemed me worthy to fill this job. And I felt like it was not so much what they thought of me as what they thought of themselves, for they all began to ask for appointments. One wants to run the railroads; another thought he would like to be food controller; another wanted to be fuel administrator, so I saw what they were driving at. In due time I will give them appointments. I told one of them I had a son-in-law of my own to take care of. I also told them I had three boys of my own, and so far as history goes, people in office feel it their duty to take care of their own family first, so when I get through with my own family I might not have many appointments to hand out. I want to say, while I am on the subject, that I am quite proud of some of the members of my family. I am proud to say I had two boys who enlisted in the service of their country, I have a son-in-law in the navy, a brother-in-law in France, and four nephews. A little army of my own. (Applause.)

I appreciate the fact that I have been elected to the office of third vice-president, and I shall watch the president, and the first vice-president and the second vice-president, and by the time it comes to me I may be able to fill the chair in a manner that will not cast any discredit on the Association. (Applause.)

Secretary Randall: The secretary tried to keep his word with Mr. Wilson—the secretary never fails to keep his word, if it is possible to do so. He does not double cross any one and never did. When Mr. Wilson's name was first suggested as a possible candidate, I told the local people that Mr. Wilson did not want it, and would rather not have his name presented, but the local representative told me that Mr. Wilson was the man they wanted, and I had nothing further to say.

Mr. Hammond: I want to take this opportunity to say a word. I was glad to have the secretary say, as he did this morning, that we must remember we are dealing with men. I trust we may be able to find out in the coming year that men will lend their support to this organization, keeping in mind "Peace on earth, good will toward men," is to be the keynote of success. Keeping ourselves abreast of the best and most upright methods will lead to combinations which will, in my opinion, Mr. President, be advantageous to us as members of this or any other organization connected with business. Harmony and co-operation must be kept in mind by those who are scheming and planning for larger development. Let us take the thought of harmony and co-operation back with us to our homes and when invitations come to join this, that or the other, investigate a little, and success must attend whatever we do.

President Robb: That seems to complete the business of the convention, and with your consent I will declare the convention adjourned, and wish you Godspeed in your journey to your homes and a happy and prosperous year for 1919.



I want a job in your plant

I'm "On-the-Job" *Gandy*, the neverslip—never slack—original stitched cotton duck belt.

You can gauge my calibre from my "references"—
(names on request)

"Pulled a plant 27 years and still running."

"Running two main drives for 14 years—another for 20 years —same plant."

"On the job continuously for 20 years and still doing good work."

"Giving service that can't be obtained from leather."

"Excellent service on the hardest drives known," etc., etc.

Power or Conveyor — I'm made in a size and ply to fill all jobs—and **get all the pull from the pulley.**

Send the word to Mill Supply House or Home Plant direct —and I'll report for duty promptly,

"On-the-Job" *Gandy*

THE GANDY BELTING COMPANY
749 West Pratt Street BALTIMORE, MD.
New York Branch, 36 Warren St.

Look for the Green Edge and *Gandy* Trademark.

GANDY 'Stitched' Cotton Duck BELT

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ORIGINAL Boss SYSTEM

Drying and Burning

BOSS TEN-HOUR DRYER

Use either waste heat or exhaust steam.
No live steam. No direct firing.

BOSS SYSTEM OF BURNING BRICK

Applies to all types of kilns and will save HALF in your cost of burning.

Let us save Time and Money for you

JOHN C. BOSS CO.
Monger Bldg., Elkhart, Indiana

YOU HAVE KNOWN FOR YEARS THAT

RICKETSON'S MORTAR COLORS

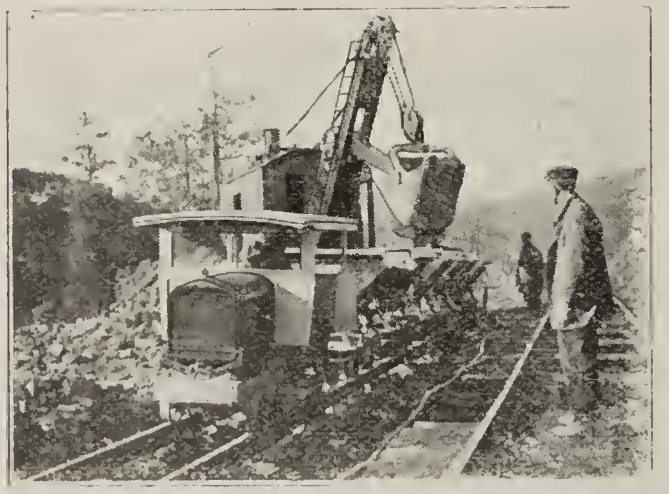
are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

Why Not Insist on Having Them?

They are the acknowledged best for all uses---Mortar, Brick, Cement, Concrete and Stone.

Red, Brown, Buff, Purple and Black.

RICKETSON MINERAL PAINT WORKS
MILWAUKEE, WIS.



Leathers' Mine Motors

Especialy adapted for outside hauls. So simple and so efficient as to be almost unbelievable.

Will replace four mules and operate on five gallons of gasoline per day.

Suitable for Coal and Clay Mines, Limestone Quarries, Brick and Tile Plants, Road Building, etc.

Write today for prices and full descriptive matter.

Brookville Truck & Tractor Co.
Brookville, Pennsylvania

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, March 28, 1919. No. 4.

BUILD NOW

SPEEDING Reconstruction With Advertising—the New Method Which the Government is Utilizing to Stimulate Business and Peace-Time Prosperity.*

THE END OF THE WAR has brought our Government problems in the re-establishment of industry second only to the waging of the war itself.

There is no time to lose. With war contracts completed or cancelled, millions of men who have transplanted themselves into munitions and shipbuilding work find their labor at an end, and a slow market for their services. Men by hundreds of thousands are already returning from war service—they too must support themselves and their families.

Faced with these problems of turning industry and labor back into peace-time channels without disturbing our economic stability, the Government turns to advertising. Advertising, our officials have discovered during the last two years, is the most powerful instrument they have ever taken in their hands. It was through advertising and publicity that millions of dollars were raised for the Red Cross, Y. M. C. A. and K. C. It was through advertising that billions of dollars were raised for our Liberty Loans.

In truth, it was through advertising that the war was "sold" to the American public so thoroughly that this nation of complex races moved en masse, as a unit, towards the one end of winning the war in the shortest possible time.

And it is to advertising that the Government turns now to put business back on its peace-time feet immediately.

To understand this attitude, business men must know what the Government has discovered about advertising. It was at the outbreak of the war that immediate need for a war-time Red Cross organization called for raising of funds and increase of membership. Other cities had waged membership drives with indifferent success, when the movement got under way in Chicago and the now famous "Chicago Plan" was inaugurated.

Full page paid space in newspapers was subscribed by business men—the move gained in popularity and thousands enlisted in the work of securing Red Cross members. Not only did Chicago nearly double its original aspirations for 150,000 members, but those members were secured at a cost of 7½ cents each as against the previous

Uncle Sam Says Build Now.

WE'RE poised—halted—as a nation. Like the pendulum of a clock that has reached the limit of its sweep and hesitates, so this country swept on for two years in pursuit of war. Peace has come—we're halted! You yourself are delaying action on that building contract! We've got to get started back again or Reconstruction will be a long, laborious, expensive process.

---

* Excerpts from an address before the Hollow Building Tile Association, Chicago, March 19, 1919, by Wm. H. Rankin, of the Wm. H. Rankin Co., urging a Build Now campaign.

minimum in any campaign of 16 cents per member and 23 cents per member in New York City.

So successful was this "Chicago Plan" that it was adopted for the Liberty Loans—full page newspaper space has been the bulwark around which have been built all of the Government's publicity efforts in selling Liberty Bonds and the war to the American public. It is now known that through this medium of publicity 18,000,000 new bond buyers have been created. The spirit of economy and thrift has been implanted as firmly into the minds of the public that food conservation and fuel conservation continue though the immediate need for it has disappeared.

In other words, advertising proved itself a great economizer in the selling of bonds and the war. Communities which endeavored to sell bonds without advertising met indifferent success. Bond salesmen who tried to sell without publicity were only half as successful as other salesmen working with an organization which did advertise. Advertising proved itself also a great accelerator. It molded all of our minds into one immediately. Without publicity, we might not yet have had our unanimity of purpose that we did have before the war was six months old for us.

It is that experience which has led the Government to urge advertising for the re-establishment of business, and it is not surprising that it turns first attention to the construction industries. For two years building and construction of practically all kinds has been stilled throughout the country. Public buildings were halted, improvements to roads and streets were cancelled. Only by securing a license and proving conclusively that a building was a war essential could a building, hotel, home or apartment be put up.

Now we find the country short 700,000 homes, not counting the normal construction which might be expected during the coming year. Every city in the country needs apartments, office and store buildings, public buildings, street improvements, sewer extensions and roads. The shortage is so severe that it approaches a social emergency.

Yet capital for big enterprises is hard to get. Big mortgage companies, lending institutions, insurance companies and banks have bought Liberty Bonds to the limit. Free capital is to be found only in the hands of small investors—there it is more abundant than ever and the reports of our saving institutions show deposits far greater than ever before in our history.

Building must be inaugurated, then, by stimulation of the small investor to immediate action. We have a problem practically identical with that of selling Red Cross subscriptions or Liberty Bonds. And advertising is the logical answer once more.

In answer to the Government's call for advertising, I have had prepared a series of "Build Now" page newspaper advertisements to aid the business men of the country. You will notice in the illustrations that these advertisements dominate—they will be predominate in any newspaper in which they are run. As a series, they will gather momentum and if properly supplemented by individual effort will start an era of construction, repairing, painting and buying immediately.

Men in the Clay Industries will appreciate the possibilities which such advertising holds for your business. Keep in touch with your newspaper representative and throw your weight behind this movement of the Government which seeks to bring prosperity to you and the whole nation in the shortest possible time.

One of the best ideas that has come out of Washington lately is that one that the government should fill the roll of buffer in the matter of employment, enlarging and reducing the volume of public work in keeping with the needs of the day to furnish full employment to labor.

BOOSTING THE BUILDING GAME.

FROM CITIES, TOWNS AND HAMLETS throughout all the United States comes stories of plans being formed or already in operation to promote more building activity. Are you doing it in your own home town?

The Building Spirit Abroad.

The building spirit is abroad in this great land of ours, the home building spirit, the community building spirit, and the spirit of promoting more active building generally. Some localities have had building booms before, but never before has there been so much widespread and general interest in the subject of building, or more concerted effort to stimulate building activity. It comes from government departments at Washington, and from cities, towns and hamlets all through the country, everywhere, on all sides the dominant interest of the day is that of promoting more active building. In a word it is the greatest building boom the world has ever witnessed, a boom in the process of making which promises great things for a greater number of people than could be obtained right now through the stimulation of any other kind of industry.

Practically every department of the government at Washington is actively interested in the matter. The Department of Labor got into action on it early because of the promise found therein for the employment of idle labor and has been sending out a series of striking posters appealing to the building spirit. The Governors and Mayors of the country were called into conference at Washington with a view to stimulate public construction and encouraging private building, and among all the departments of the government at Washington there is a manifest desire to do as much government building as possible, and to encourage private building. We find this reflected in the provisions being made for road construction and in plans for waterway improvements.

Organized Local Boosting.

Organizations of building material interests have been getting active, too. The cement folks for some time now have been promoting interest under the slogan "Build Now," a lumber organization of the south, The Southern Pine Association, is spending something like $50,000 in a broadside of literature to the retail lumber dealers of the country the purpose of which is to arouse active local interest in promoting more building activity. But it is the aggregate of local efforts, in cities, towns and hamlets, that is proving the big feature in the present game of boosting building. It is what has been done, is being done and may be done by local co-operation and effort of all those interested and profiting from more active building which most concerns us here and now.

How Seattle Put It Over.

Seattle, Wash., was one of the earliest of the larger cities to get into the game, and how Seattle put it over has been a stimulating example to others, that is, how a campaign put on in Seattle resulted in the building of 3,700 new homes. The story of how Seattle did it has been so widely printed and read already that it hardly needs repeating in detail here. We must remember, however, that while Seattle deserves full credit, that conditions there were somewhat different from what they are in the average city today. The Seattle campaign took place before the war ended and was partly a result of war conditions which brought in the active co-operation of the War Industries Board. It was a case of congestion in population, owing largely to war workers coming to the ship yards which reached the point of creating

LIBRARY UNIVERSITY OF ILLINOIS

ALL TOGETHER

Build Now Repair Now
Paint Now Buy Now

Every Dollar Put to Work Now is a Foundation Stone in Building Our Local Prosperity.

THERE'S a tremendous lot of building that must be done in this city and we've got to get at it. We need homes, and apartment buildings, and schools, to say nothing of business buildings, and unless we get them soon our city is going to suffer.

For two years everything has been stopped. Population has increased, rents have jumped. People are paying premium prices to find any kind of a place to live in.

We Need To Get Business Going

IT'S perfectly obvious that such conditions can't be permitted to last very long if this city is to be a desirable place to live and transact business. If we don't remedy it, we'll lose a lot of prosperity that should come to us—and that reacts on every man and woman that lives here.

At the same time, we need to keep business going. The end of the war has brought us an industrial situation that we must face in common. Building is the quickest possible way to stimulate business and tide over this crucial period. And we can build as cheaply now as we can for years to come.

We'll All Profit If We Work Together

WHAT we need is to get our bankers and property owners and contractors together—*at once!* We must all talk building, and plan building. Materials are available, railroads can make deliveries, there is sufficient labor and there's a demand for buildings that is unprecedented. Surely it's a favorable market.

Prices aren't going down soon—there's nothing to gain by delay and much we can lose. Lets get together—and do it AT ONCE

Copyright 1919
Wm. H. Rankin Company
Chicago, New York, Washington

The United States Encaustic Tile Works, Indianapolis, Ind.

a housing problem comparable in some measure with others in the East, where the government virtually took over the work. Seattle simply got busy and solved her own housing problem by putting on a campaign of the Liberty Loan order directed toward home building.

Advertising the Big Agency.

But, while conditions were different there to what they are in most other cities today, the organization plans and methods used by Seattle are applicable in a modified way to other places, and furnish an interesting study in how to do it. The work there was carried on under the auspices of the Chamber of Commerce, and, as in most cases, it was accomplished by the organization of committees and departments. There was a department of information, an architectural department, a building material department, a sites department, labor and contracting department, and a department for financing the home builder. And while a feature of the campaign itself was personal teamwork solicitation, pretty much like rounding up Liberty Loan prospects, it is freely admitted that much of the success all around was due to an effective publicity campaign conducted by one of the leading publicity directors of the West coast. In a word, newspaper advertising and supplementary forms of publicity is what paved the way and made it possible to put it over.

The "Build a Home" Idea.

One of the features of the Seattle plan was a complete bungalow completely furnished which was used as an exhibit, and in which a couple was prevailed upon to get married. Also it is to be noted that in much of the advertising and literature being gotten out the "Build a Home" idea is strongly featured, the feature often centering on a modest home for possible newlyweds. The home building idea is featured, too, by the Department of Labor, and by others who advocate this for better citizenship and a sure preventive of Bolshevism developing in this country. It is right and proper, too, that we give a large place to the home building side, but let us not forget that there is more to the building game than this. As an architect of wide reputation and experience said after reviewing the Seattle work and some other literature being sent out, it gets to looking at times like an effort to see how many miles of bungalows can be set up, and what we need is more activity in building operations generally.

What Louisville Is Doing.

Louisville, Ky., is at this writing in process of developing a plan for arousing public interest and bringing about more building activity through a campaign of newspaper advertising and other forms of publicity in which it is expected to spend somewhere between ten thousand and twenty-five thousand dollars. What Louisville is undertaking, and the plans being put through there may furnish an incentive and an idea in detail to other cities and towns about how to undertake and carry out such a program, the plan being, of course, subject to modification to suit local conditions.

The start-off was made at Louisville by calling a sort of mass meeting of various material and supply men who would be benefited by a greater building activity. In this case the meeting was held at and under the auspices of the Builders' Exchange. After a number of addresses had been made by authorities in various lines about the need for and the benefits to accrue from building activity, a resolution was passed that the chairman of the meeting appoint a committee to outline plans for a campaign of advertising to promote a more active interest in building, and given authority to act, to raise funds and carry out whatever plans were made. The members of this committee to be named from and to represent the various lines of endeavor which would benefit directly and indirectly by increased activity in building.

Many Lines of Interest.

Something like fifteen lines were represented in this committee when it was named, including architects, general contractors, electrical contractors, roofing contractors, cement, clay products, lumber, plumbers, paint dealers and painting contractors, plumbers' supplies, hardware, heating contractors, insurance, real estate. This committee then organized and named an executive committee from among its members of about half dozen to handle the details of the work with the direction and advice of the main committee.

The first work of the executive committee was to have written in brief outline, and printed, a prospectus of what it was proposed to do which could be used in the preliminary campaign of raising funds for the work. This prospectus, after reviewing the purpose in hand and the preliminary meeting that had brought the committee into existence, outlined the plans and specifications which they had so far made and agreed upon, which were as follows:

The Plans.

"The plans as tentatively outlined contemplate a campaign of exploitation to arouse public interest in building, not by, for or under the name of individual firms, but a broad general campaign under the auspices of the Builders' Exchange and Allied Building Construction Supplies as representing all interest involved. The main idea is to have a series of big advertisements (probably full page size) appear in the various daily newspapers of the city, the size, frequency of publication and the length of time the advertising campaign is to run will be governed by the amount of funds available and the judgment of the committee in charge—perhaps six weeks or two months.

"In this advertising campaign the hearty co-operation is promised of both the advertising and editorial departments of the newspapers. The copy is to be prepared by experts and the entire campaign carefully mapped out before starting off.

"Supplementing this it is thought that various other forms of exploitation may be brought into play, including the insertion of 'Build a Home' notices in pay envelopes by merchants and manufacturers, picture show slides and other forms of publicity as give promise of results. And the committee in charge will welcome any and all suggestions for lines of effective exploitation."

The Specifications.

"The main needs for the successful carrying out of the plans here outlined are funds and cooperation to put it over. The proposal is to raise funds by voluntary subscription through the activity of the committeemen of the various divisions. Each division committeeman will call a meeting of those in his line, and appoint a committee, of which he will be chairman, which committee will canvass the division for voluntary subscriptions to the general fund. The division committee head will furnish the main committee a list of those in his division and report the result of canvass for funds and general active co-operation.

"No funds will be spent for anything but the actual and necessary costs of conducting this advertising campaign—the committeemen giving their time and service free."

Some Interesting Questions.

While the Louisville effort has not at this writing proceeded far enough to show positively what results have been or may be accomplished in this way, it has brought out cer-

Newspaper Syndicate SECOND PROOF 5094 94 ems x 280 lines

This is Your Chance
BUILD NOW

Copyright, 1919, Wm. H. Rankin Company
Chicago New York Washington

WE'RE turning people back from the gates of our city because we have no place for them to live. To the man who says, "I want to live in your community, I want to produce, I want to contribute, I want to share with you," we answer, "Move on. We're filled up. We have no housing accommodations." As he passes on, we all lose.

To industries who would locate here, we turn a deaf ear. We have no place for their workers to live.

Do you realize how strained our housing conditions are? Construction has been suspended two years. *This is your chance!*

BUILDING PRICES are low—they have not kept pace with wages, foodstuffs, clothing and the necessities of life. That's why building prices will not drop for years.

You can build now and get a market for your house, or rental that is unprecedented. You'll probably never have a chance to build again when there's such a demand for your house, apartment or store.

Materials are available; for the first time in years you can get labor; the railroads will make your deliveries. What an opportunity—just what you've waited for all your life. *This is your chance!*

"BUILD NOW," says the Government. We must feed orders to our factories, feed work into the hands of our producers if we're to maintain our prosperity and successfully bridge from war to peace.

Building is the quickest way—we're two years behind, the country over. Construction calls for production of every kind. Public works help tide over this crucial period—but private construction must begin at once. It is vitally important.

Your $10,000 contract will be split into sub-contracts for materials and filter clear through the fabric of industry. It will help re-establish the nation. *This is your chance!* Buy now.

IF the people in this town who have deferred building plans until "after the war," and those who intend to build will only act now, we'll get a building program under way in this town that will relieve conditions, build permanent wealth and prosper us all. As a city, we'll do our share in Reconstruction—as individuals, we'll make money.

Other cities, facing the same situation, are meeting it. Why can't we? What we need is concerted action. It's a business opportunity—*it's your chance.* Seize it—sign your contract today.

BUILD NOW! REPAIR NOW! PAINT NOW! BUY NOW!

Western Brick Co., Danville, Ill.

tain interesting points that are entitled to some special attention. Among the early questions raised was one of why building activity is hesitating and needs stimulation. The answers to this question were high present costs, and the prospects in the public mind of lower costs later on. A companion question was that of finance, of the attitude of banks, trust companies and building and loan organizations toward assisting with loans under the present higher cost for building.

A ready answer to the latter question was found by a special committee making a call upon the financial institutions. They found that there is more money ready to be loaned than ever before, and that the financial people realize that building values have increased all around, even buildings already erected have appreciated in value instead of depreciating during the past two years. In a word, the people with money to loan are ready with funds and anxious to see things moving.

The Stumbling Block of Cost.

The question of cost today compared with cost in pre-war days, and with what the cost may be a little later on is the hard nut to crack. It is readily conceded that costs will not go back to the low level of pre-war days, and it is thought that once the prices of material and labor are actually stabilized, and the public convinced of this, no matter just what the level is, building will go forward. This is a point that will have to be touched upon and some answer made to by any and all who undertake a campaign for the promotion of building activity. And it is one which calls for thoughtful handling and broad vision. The government departments at Washington are wrestling with this subject and it will be well for those who are interested in stimulating building to get all the literature from such departments touching upon this matter, including the plea of Secretary Redfield for cuts in prices to be made wherever such cuts are possible, made all at once and to the limit, and then prices stabilized at the point arrived at. On the other side there will be found some splendid supporting argument from the Department of Labor for the higher values of material and labor.

The Idea to be Put Over.

The big job before the boosters of the building game right now is to instill in the public mind the idea of building at higher costs than prevailed in pre-war days. It is a job calling for real salesmanship, too, but there is nothing impossible about it to hesitate and stickle over. There is plenty of money to be invested in improvements, there are men who require employment, and the country is a full year behind in its construction program and the building is needed. So the thing to do is go to it and put it over.

"TESTS OF THE HOLLOW BUILDING TILE."

We are in receipt of Technologic Paper No. 120 from the Bureau of Standards, which is a report of tests made with hollow building tile put up in book form. The principal tests discussed are those of compression and absorption, which total about 250 strain readings. This is a report that should be in the hands of every manufacturer of building tile, and it is to be had for five cents a copy. Those desiring copies of it should make application with remittance to the Superintendent of Documents, Government Printing Office, Washington, D. C.

The Department of Labor at Washington is helping to boost building, for the very good reason that busy times in building is the best preventive of idle labor.

FARM DRAINAGE AN IMPORTANT FACTOR IN CONSERVATION.

SOILS WHICH NEED UNDERDRAINING.

WHAT kind of soils need underdraining? An answer in brief would be, all soils not readily freed from excess of water, suited to cultivation, should be underdrained.

This answer is not sufficiently definite, perhaps, for many who would like to know how far they may extend the work of underdraining their land profitably. We answer, therefore, that the work may be extended on good agricultural lands, well suited for profitable farming, until the excess of water from an ordinary rainfall is passed down through the soil and subsoil and away without injury to the crops, or to the land by surface washing. It is a good theory that water should go down into the soil where it falls, and the excess pass through drains or by natural underdraining. To carry out this theory practictically would involve a very great enlargement of the work of underdrainage, much more than has been contemplated by many good farmers.

The opinion was entertained by some in the beginning of the work of farm drainage, that only the low, wet places needed drainage, and a few may be of the same opinion now, but there has been a radical change on this point among intelligent farmers. It is very common now to hear a good farmer say, "The more I drain, the more I see the need of it." Another says, "When I commenced draining I thought one hundred rods, or a very little more, would be all I needed to do, but it looks now as though I should not get done draining until all my cultivated land is underdrained." So it is with all those who have learned something of the benefits of underdrainage.

That ordinary farm lands, which have a surface drainage sufficient to carry off the water of heavy rainfalls in a few hours, need underdraining is not believed by many, but such lands may need it very much, not only to prevent the great waste from surface washing, but rolling land is often injuriously affected by an excess of water in the soil. Water falling on high land enters into the soil, and passing down into the subsoil, may come in contact with a strata of close, retentive clay, then slowly passes through the soil near the surface, it may be, to lower rolling land, coming out in springs or seeps. This underflow of water is very general, and it may be so near the surface that the excess is taken up by the capillary action of the soil and brought to the surface and evaporated before it finds other outlets. The evaporation, however, keeps the soil cold, and often waterlogged. If we have not familiarized ourselves with these facts, we will often be at a loss to account for the conditions of crops on rolling land—they grow slowly and get yellow and spindling on lands that may have a sunny exposure.

The wonderful change wrought by underdraining such lands will prove a gratifying surprise to many. The soil will become open, warm and mellow in its nature, compared with what it was, and the crop yield probably doubled.

There are few farms in this state that have no portion that would not be benefited by drainage. Clay soils having no underlying strata of sand and gravel to carry away the excess of water will be greatly benefited by underdrainage. Other soils where the water level is so near the surface as to injure growing crops need drainage.

Thorough work in drainage involves the laying of drains in parallel lines, so near to each other that all the soil and subsoil will be affected nearly alike, that the water level in the soil be lowered to a point where it will not injuriously affect the growing crops, and give a circulation of air through the soil and subsoil, above the water level.

Tile drainage is expensive when well done and more ex-

Construction has been stopped for two years; Housing Shortage unprecedented –

BUILD NOW

Copyright 1919
Wm. H. Rankin Company
Chicago, New York, Washington

Turn Your Vacant Lot Into a Paying Investment–

Own Your Own Home and Avoid High Rents

YOU'VE waited years for an opportunity like this—you'll wait years again.

Have you seen people hunting this town over for a place to live? Have you seen rents jump? Then meet the demand by building a house on that vacant lot, and turn it while you have a "top market."

If you want a safe, sure, certain investment, buy a lot and build a house on it. Don't wait for prices to go down — they aren't going down farther for years. The time to build is when the market is good. Prices may be high—but so are your returns.

Have you planned to own your own home? Then now, if ever, with rents going still higher, is the time to build just what you've wanted and move into it.

You can get materials and labor and deliveries now—a few months hence, when the building and Reconstruction movement is in full swing, you'll wonder why you passed the chance you have now.

Every house you build releases another home or apartment—adds to the prosperity of the city—adds to your prosperity. Talk this over with your contractor and start figuring today.

Buy Now! Repair Now! Paint Now!

OUR national life is like a row of dominoes. When you buy, you force the merchant to replenish his stock, he forces the manufacturer to produce, and he in turn must buy supplies. The railroads are busy, the mines work — our whole industrial life teems with prosperity. That prosperity comes right back to you.

JUST now our nation faces the most crucial period of its history. Our biggest customer, the war, is defunct. He has stopped buying. Unless we fill the breach, this lack of business will stop factories, merchants, industry. We're shifting our gears from war to peace, and we dare not stall our industrial engine. Now's the time to do those things that we postponed until "after the war." Paint your house, repair the front steps, refurnish the bedroom. Buy—and keep industry going. Fill the breach that the end of the war has caused, until we get back to normal as a nation.

UNLESS we work together, unless we spend our money, Reconstruction will be a long, perilous, expensive process.

The Standard Dry Kiln Co., Indianapolis, Ind.

pensive when poorly done. But most costly of all when not done at all, when it is badly needed, and often more than we think.

How to Drain.

A broad correct view of the extent of work needed to be done is very essential for a right beginning, otherwise much of the work done at first will likely prove a hindrance to its progress in after years—in the using of sizes of tile too small and in laying drains too shallow.

The Outlet.

The work properly begins at the outlet, which should be selected carefully, so as to give the most fall and direct flow of water and drain the largest area in the system of drainage mapped out in the mind of the owner, or on paper.

Beginning at the outlet, the main drain should be as deep as the conditions will allow, not exceeding, probably, four or four and one-half feet ordinarily.

The tile for the main drain should be large enough to carry all the water that will likely fall on or run on to the area intended to be drained through the outlet.

The size of the tile should depend upon, first, the size of the area to be drained; second, upon the inclination of fall, and third, upon the depth of the drains.

First, as to the area to be drained: To illustrate more fully, A proposes to tile drain twenty acres of land, and selects his outlet, and wishes to determine the size of tile for the main drain. He finds that there is an area of twenty acres of higher land that sheds its water onto the twenty acres which he wishes to drain. The natural outlet for the surface water is over A's twenty acres under consideration. The tile for main drains should be large enough to carry the water off forty acres. It will probably be necessary to use an eighth-inch tile for forty acres, depending on the fall and depth of drain, possibly a larger size may be required, if there is little fall. The largest size may be used until one or more lateral drains have entered into the main, and then reduced in size as the capacity required is lessened.

Second—The inclination or fall is an important factor in determining the size of tile needed. The greater the fall the greater will be the rapidity of the water flow, and the greater amount of water that may be passed through the tile. A three-inch tile main may have fall enough to carry more water than a four-inch drain laid at a slight inclination. A main drain may be laid at almost a level grade and do good work, but the size of the tile should be large enough to carry the water which has only a sluggish flow.

Third—The depth of the drain is, also, a factor in determining the size of the tile needed. The greater depth requiring a less size, where the fall is the same. The increased depth gives an increased water pressure in the soil and the increased pressure increases the rapidity of the water flow. Another reason why the size of tile may be smaller in deep drainage than in shallow is that the greater the depth of drained soil, the more water will be required to bring the deeper subsoil to the point of saturation when the water will fall away and pass out through the drain. A soil and subsoil drained to the depth of four feet would receive and take up the water of a heavy rainfall, passing through the rootlets, moistening the earth, but not to a point of complete saturation, almost to the tile, and in fact, conserve needed moisture for growing crops. When shallow drains would receive and pass most of the water away because of complete saturation.

The experience of some of our most extensive land drainers in this country is that four-inch tile are as small as should be used for the smallest lateral drains, to carry off the water of heavy rainfalls and give a good circulation of air through the soil, for the reason that our soil is much more open and our drains may be double the width apart, compared with those of England.

Another factor is that the method of constructing drains should be taken into account in determining the size of the tile, the regularity of the fall, the directness of the flow and the laying of the tile.

A drain may be dug and leveled correctly and the direction may be in a straight line, but the laying of the tile may be so imperfect as to seriously affect the capacity and efficiency of the drain. By laying them so that they are unevenly met or shouldered at the joints, more or less, the water in flowing through the drain strikes against the shoulders, cutting across the current, lessening the rapidity of the flow and reducing the capacity of the drain at almost every joint. The unevenness of the joints is often the result of careless work in shoveling the first earth on to the tile in filling the ditch.

Connecting Drains.

Lateral or side drains should be made to enter the main drain at an acute angle. Otherwise, the water flowing in from the side drain will seriously interfere with the rapidity of the flow in the main. With faulty connections the main drain should be larger than with better connections.

Depth of Drains.

If our knowledge of the benefits of underdrainage is broad, embracing only the removal of the excess of water on or in the soil, but, also, the greater depth of food supply for the growth of crops, and the circulation of air through the soil, we will, if true to our best thought upon the subject, practice deep drainage—three to four and one-half feet, and deeper if necessary to perfect the work.

There are cases, however, where it is not possible, at any reasonable cost, to secure an outlet for deep drainage. Then we advise those interested to do the best that can be done; drain shallow rather than not to underdrain at all where the land needs it.

Width Apart.

The width between drains to secure the best effects at a reasonable cost depends upon the depth of the drains and the character of the soil and subsoil.

Deep drains drain a much wider space on each side of the drain than shallow drains would in the same soil. To illustrate: If a drain laid thirty inches deep drains a width of space on each side of twenty-five feet, a drain three and one-half feet deep will drain forty feet. In either case, depending upon the character of the soil and subsoil. But we should not conclude that because the surface of the soil midway between the drains is made dry enough for the plow that we may place the drains eighty feet apart, if we aim to drain deeper than we plow midway between the drains. For the reason that the water in passing through the soil to the drain must have some fall or inclination toward the drain. Drains laid at a depth of three and one-half feet and eighty feet apart in a close, rententive clay soil would afford very little drainage to the soil midway between, but would be very satisfactory in an open soil. In an open soil the water passing through the earth to the drain meets with less resistance. If we do anything like thorough work in drainage, we must take these conditions into consideration to determine how deep and how wide apart drains should be laid to secure the best results.

Digging the Ditch.

It may be, though, a very simple thing, to be sure, but everybody cannot dig a good ditch any more than everybody can hew to the line. Indeed, it is not everybody that can set the stakes for a good ditch. We may think there is very little in digging a ditch, and it is little, apparently, if only

A Four Minute Talk Why You Should Build Now

Copyright 1919—Wm. H. Rankin Company—Chicago, New York, Washington

WE'RE poised—halted—as a nation. Like the pendulum of a clock that has reached the limit of its sweep and hesitates, so this country swept on for two years in pursuit of war. Peace has come—we're halted! You yourself are delaying action on that building contract! We've got to get started back again or Reconstruction will be a long, laborious, expensive process.

Housing Conditions in This City Are Strained

For two years there has been no building—our population has increased, rents have jumped, property values have risen and people can find no place to live. It is a serious situation.

You know that right now any man with a house or an apartment can get his own price for it. There was never a better time to build from an investment standpoint.

Your Building Will Help Speed Reconstruction

For the first time in years materials are available, deliveries by railroads are certain, and there's labor to do the work. Experts agree that it will be years before building prices will recede—as a result business men the country over are launching their building projects. They're striking while the iron is hot.

You Must Help Re-establish Business

This is the critical moment in our national history—we must pour business into our industries to tide over the transition period and start wheels whirring again. Your $10,000 forces sub-contracts that will filter clear through the fabric of our industry

What We Need Is Co-operation

If you'll help, and the other fellow will help, we'll relieve conditions in this town, we'll make good business investments, we'll have lots of business and prosperity What we need is to get started Your contract is the keystone. Let's GO

Build Now! Repair Now! Paint Now! Buy Now!

C. & A. Potts & Co., Indianapolis, Ind.

sixteen or twenty inches in depth; but there is a great deal in doing the work well. In digging, make the top only wide enough to work in conveniently. Carry the sides down sloping to the bottom, which should be only wide enough to receive the tile, whatever the size may be. In leveling the bottom, use a scoop the size and shape of the tile, and grade the ditch so as to give a regular flow from head to mouth, if possible.

Laying the Tile.

Begin at the outlet or lowest point in the ditch and lay up grade. Some may criticise this method, but we began at the beginning of the work and find it best in our practice, possibly because we are used to it. Lay the tile end to end in a straight line, avoid shouldering or unevenness of the joints; fit the joints close together, and secure, as far as possible, a regular fall for the water. After laying a few tile, shovel in the clay from the top of the bank and cover the tile so as to secure them in position, then proceed to lay more, and so continue.

If water is running in the ditches be careful not to let the earth wash into the tile. To prevent this, keep something to close the end of the tile when necessary.

Much care should be taken in doing this part of the work. It should not be slighted in any respect.

After laying the tile as outlined the filling of the ditch may be done in the most convenient way.

In conclusion, we remark that there is no improvement that can be made on the farm which, if done well, is so enduring and satisfactory every way as a well-planned system of tile drains. It is an improvement that will last for generations to come, so we can well afford to dig deep and lay the tile with care. It is an investment of labor and money which will pay a large dividend every year while we live and our children and their children live. No better investment of labor and money can be made where the land needs this improvement, as most farm lands do that have not otherwise natural drainage.

We have known farmers to borrow money to build houses in which to live, and lose both house and farm, but we have never known a farmer to borrow money to drain his land and afterward lose his land, or who did not succeed as a farmer.

We have had a large experience as an observer of the effects of underdrainage on land and the owners, and we have never known a well-drained farm to be sold at sheriff's sale.

On the contrary, we have known many who were in debt to borrow money and drain their land, and afterward pay off their indebtedness and enjoy a full tide of prosperity.

With underdrained lands we can lay our plans and carry on business of farming without being dependent on luck, the moon or the weather.

THE SOUTH SOUNDS THE KEYNOTE.

The Georgia-Carolina Brick Co., Augusta, Ga., has sounded a keynote in a full newspaper page size advertising spread that ought to start the ball rolling in the building game in the south country. In answer to the headline question, "Is This the Time to Build?" they have put into brief form and printed facts and opinions given out by the Department of Labor at Washington, and by various other authorities, proving pretty conclusively that it is time to be up and doing. And they do not forget to attach the "Build with Brick" slogan as a reminder of the best building material on earth. It is good work, at the right time and in the right place, and ought to bring its own reward as well as furnish a stimulating example to others.

To finish up our war job there is not only the new tax bill to carry, but there is also a Victory Loan to be floated. It is a big job, but we have the men, the resources and the will to see it through.

BRICK AND BUILDING NEWS OF CINCINNATI.

THERE HAS BEEN a brightening in the building horizon in this section in the past month, and while the sun is not shining brightly as yet, still the rift in the clouds is ample to give an indication that there will be a brighter day with the coming of more desirable building weather. The high prices are the greatest obstacle to the larger advent of building projects. There does not appear to be much reason for any marked reduction in most kinds of material, and while there is a lowering in the price here and there, the same is not very great, and this should be fully understood by the public, so that the delays that might be consequent on this hope, will be made plain.

A number of large buildings are to be erected here in the new future, and these, with the added lists of stores, apartments, residences should make the coming months very fair. Among the large structures that are to be builded, might be noted the following: The north wing of the Dixie Terminal Building at Fourth and Walnut streets, plans for which were made some months ago, and held up on account of the war. The company has now arranged for the sale of stock to make this a realization, and the contract is to be let before long, as the bids closed on February 21, for this building.

The University of Cincinnati has requested A. Lincoln Fechheimer, architect and Walter G. Franz, consulting engineer, to proceed with the plans for the building of the Wilson Memorial Convocation Hall, to be erected northwest of McMicken Hall on Clifton Ave. It is likely that the same will be started this spring.

A large apartment building is to be erected on the west side of Reading Road, immediately north of Glenwood. Louis Weiner is to build the same, and will wreck some houses on the street to make room for the building. It will cost more than $100,000.

Eight residences, costing from $6,000 to $9,000 are to be erected by the Liebold-Farrell Building Co., for the Schott Realty Co., in its Elizabeth Place, near Reading Road. The work is to be started at once, and the remainder of the houses will be under way by May 1.

The above company has a contract for the building of a residence for A. Ramsfelder, to cost $15,000, on the southeast side of Betulah Ave., and a contract for the building of a Dutch colonial home for George W. Schnieder, Jr.

A final meeting of the creditors of the Anders Shale Brick Co., bankrupt, has been held. The unsecured creditors received $1,870.68, or 10 per cent. on their claims. The assets were $17,807.77, and the liabilities amounted to $27,700.34.

The building permits issued for the month of February amounted to 784, which is a larger number than for the same month last year. The permits represented $191,915, as compared to $250,000 for the previous year.

The E. F. Grand Brick Co., is the new name decided on by the firm that has succeeded the Purcell-Grand Co., 1208 Mercantile Library Building. E. F. Grand is president of the company.

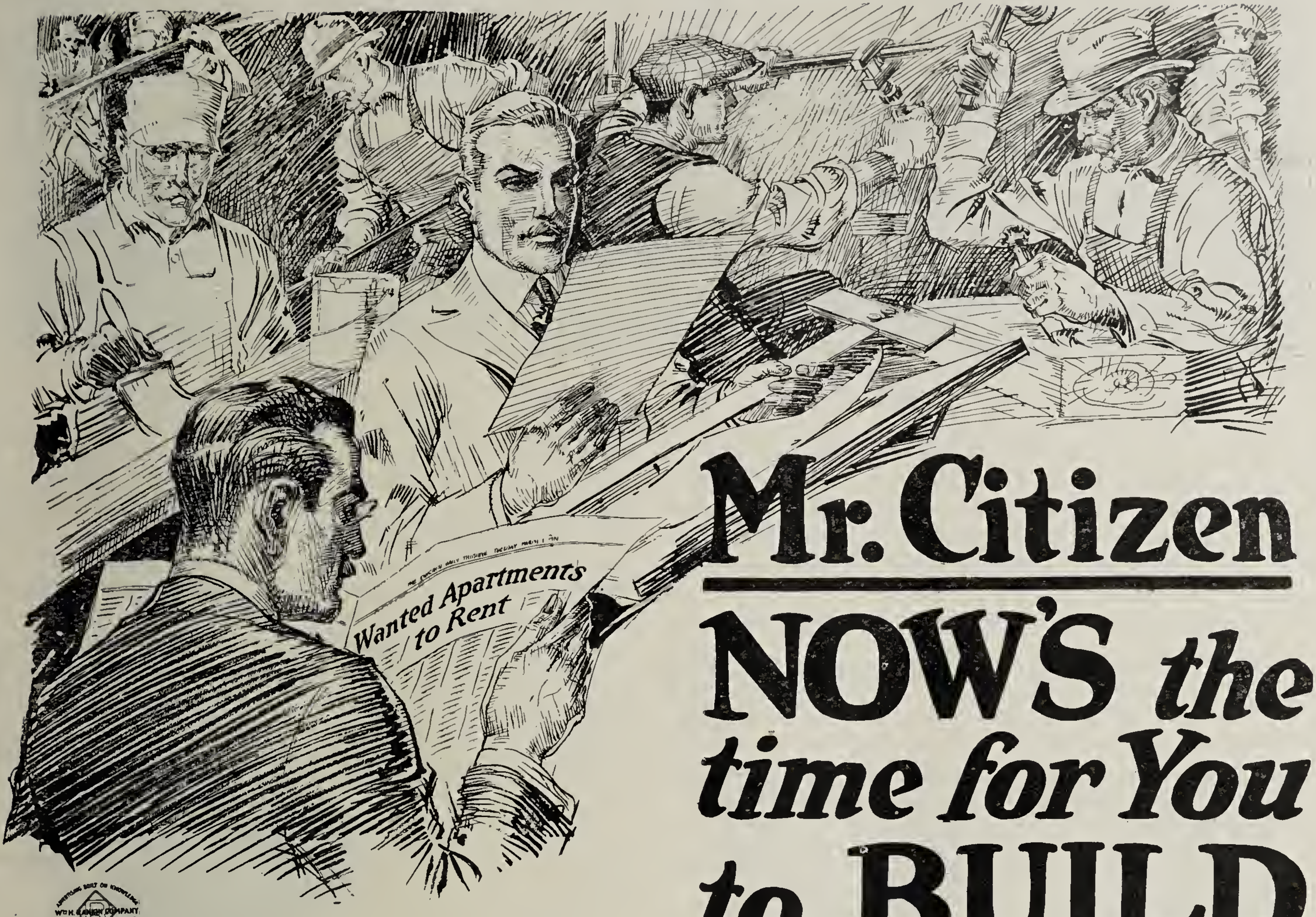
Ed. G. Pick, of the Moores-Coney Co., will attend the annual meeting of the salesmen of the Western Brick Co., at Danville, Ill. This will be held on March 8.

The W. H. Purcell Brick Co., has secured a location at 1008 Mercantile Library Building, and has been getting things in shape for the demand that is to come in the future.

The demand for brick is slow at this time with the Cincinnati Clay and Manufacturing Co., as noted, but there should be a very fair demand with the coming of spring.

CINCY.

Newspaper Syndicate THIRD PROOF 5085 94 ems x 380 lines



Mr. Citizen

NOW'S *the time for You* to BUILD

Advertising built on knowledge that benefits the consumer
Wm. H. Rankin Company

Copyright, 1919, Wm. H. Rankin Company
Chicago New York Washington

HAVE you any conception of the demand for a place to live in this town? Have you watched rents increase, property values jump and throngs of people searching for a place to live? The housing situation in this city is unprecedented—there aren't places enough to go around.

We're Two Years Behind in Building

Government restrictions and orders, need of money for Liberty Loans, shortage of materials and labor—everything conspired to throw us back. We need houses, apartments, store and office buildings. It's a business opportunity.

Prices Are Not Going to Drop

Those who are in close touch with markets say that prices cannot drop to former levels—labor costs will remain high, demand for foodstuffs and building materials will force the fundamental law of supply and demand to work. In fact, they point out, building costs have not kept pace with increasing prices of foodstuffs and labor. We can build now for less relatively than any time in years.

THIS building shortage coincides with the most critical industrial condition this country has ever had to face. We're making the transition from peace to war. Living costs are high. Unemployment means disaster—without orders factories will find it difficult to change from war orders to peace conditions. We'll have industrial stagnation.

The Government Urges Us to Build Now

Realizing the need for immediate action, the U. S. Department of Labor has organized a movement to stimulate home building. Your $10,000 contract, they point out, forces ten for $1,000—those ten call for 100 sub-contracts for $100. It will reach clear back into the fabric of our nation and help stabilize business.

Forward—American Business

Let's get our big-minded, broad-visioned bankers, our property owners and our contractors together and start to BUILD NOW. It's a business chance, an opportunity to build up local prosperity and help get our country back on a Prosperity Basis. Start the ball rolling today!

Build Now! Repair Now! Paint Now! Buy Now!

The Brooklyn Brick Company, Indianapolis, Ind.

REFRACTORIES

THE USE OF REFRACTORIES.

PROBABLY the most interesting phase of the refractories question at the present time is the use of the various products. This will be discussed somewhat in detail in the next few chapters. It is proposed, however to thoroughly discuss the various methods of manufacture of refractories of all types at a later date.

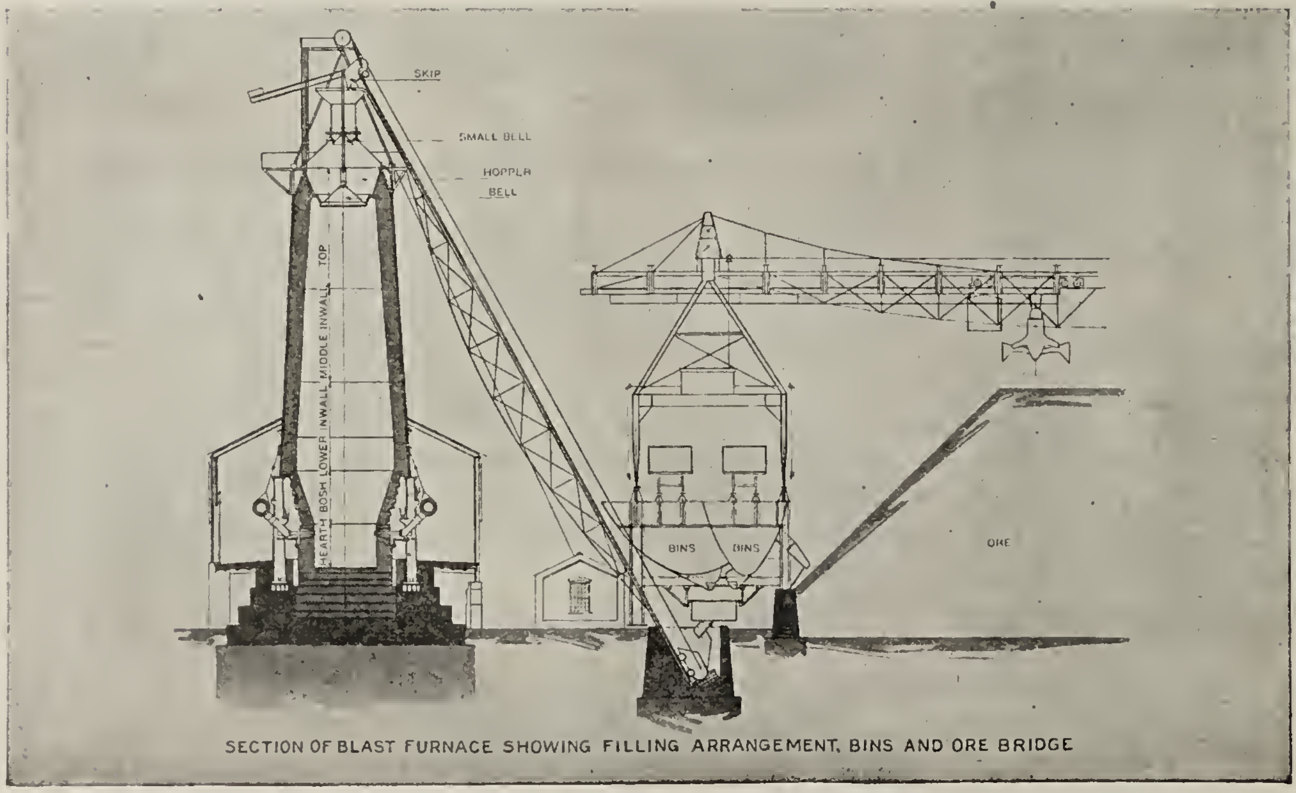
The Uses of Refractory Materials in Metallurgy.

IRON AND STEEL. The production of iron and steel probably requires a wider variation in the physical and chemical qualities of the refractories used than any other line of work. Refractories of many kinds are necessary in the blast furnaces, stoves, regenerators, converters, cupolas, reverbatory furnaces, mills, coke ovens, gas producers, byproducts ovens, crucibles and many other places.

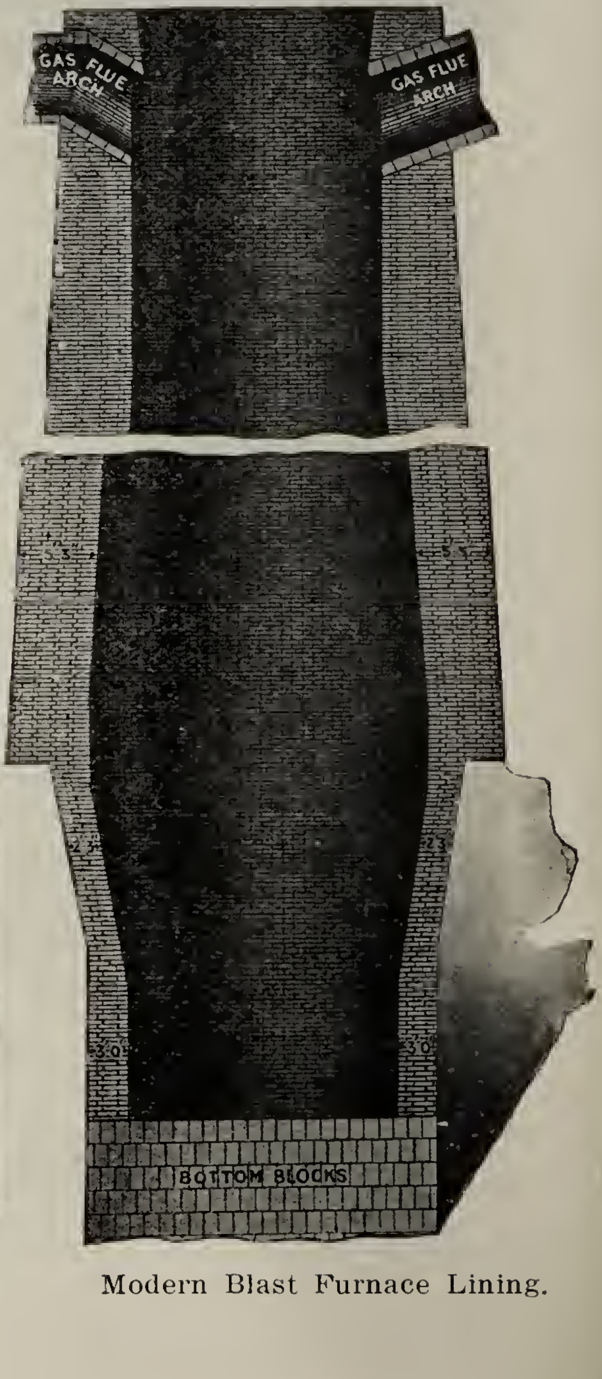
THE BLAST FURNACE. This furnace with its accessories requires many shapes as well as characters of brick. A brief description of the furnace may be of interest. Figure 1 shows a cross section through the furnace filling arrangement bins and ore bridge. As is well known, iron ore, lime stone, coke and any other raw materials that may be used are mechanically elevated on the skip from the bins and dumped into the bell and hopper charging device directly over the top of the furnace proper. This charging arrangement is so arranged that the charge can be let down through the small bell into the hopper. As the bell proper is closed during this operation there is no loss of heat and gases from the furnace. After the charge is in the hopper the small bell is again closed. The lower or main bell is then opened and the charge drops from the hopper into the furnace. As the small bell at the top is closed when the lower one is open there is still no loss of heat or gases.

The bell is so constructed that the charge is spread around the top of the furnace in a fairly even layer. The diameter of the bell must be of such a size that it will distribute the charge well to the outside.

The modern furnaces are much larger than those made a



SECTION OF BLAST FURNACE SHOWING FILLING ARRANGEMENT, BINS AND ORE BRIDGE



Illustrations, courtesy Harbison-Walker Refractories Co., Pittsburgh.

Modern Blast Furnace Lining.

few years ago. Most of the furnaces now being built are one hundred feet high from the hearth to the platform level and the diameters are approximately fourteen feet in the hearth or crucible, twenty to twenty-three feet at the upper bosh line and seventeen to eighteen feet at the top of the shaft near the bell. The different parts of the furnace are named as shown in the first figure. The top, middle and lower inwalls are each about twenty-five feet high and the hearth or crucible and bosh together are about twenty-five feet. All the above dimensions are inside.

Figure 2 shows a detailed cross section of the bosh and crucible of a blast furnace. The methods of construction and supporting the various parts of the furnace and load have all been carefully worked out and are very ingenious.

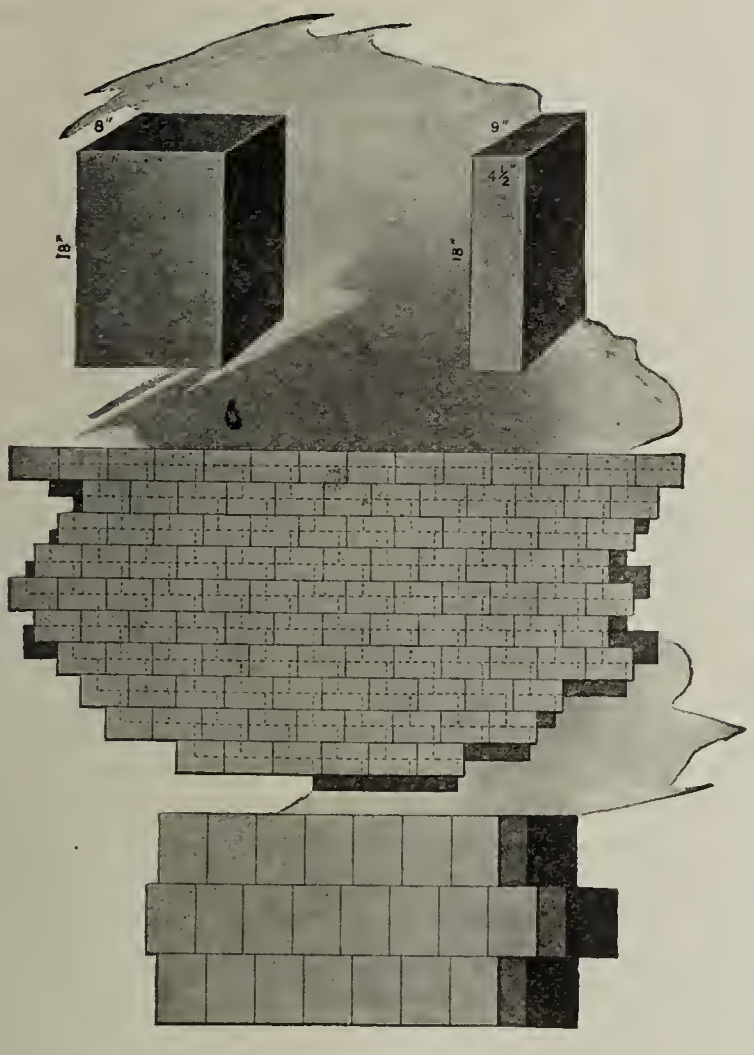
The entire weight of the furnace and charge is very great and has to be supported on a relatively small area. The entire load rests on a concrete base the depth of which depends more or less on the character of the ground. The load is supported on the foundation in two ways. The bottom, crucible or hearth and bosh up to the upper bosh line, as well as the charge in the operating furnace are supported directly on the bottom brick. All of the furnace above the upper bosh line is supported on a mantle of heavy steel plates and angles carried on a number of heavy cast iron pillars embedded in the concrete foundations (see cut). This arrangement not only distributes the load more evenly on the foundation but also makes it possible to tear out and repair the lower part of the furnace without disturbing that part above the upper bosh line. There is also another very important reason for this support, namely the prevention of superimposing too great a load on the fire brick and crushing them when heated to the extremely high temperatures to which they are subjected when the furnace is operating.

Figure 3 shows details of the bottom blocks and the method of setting them. The usual size of these blocks is 18x12x8 inches or 18x9x4½ inches. It is very important that these blocks be made very accurately, close in bond and under heavy pressure. They must fit close together and placed so as to break joints in every direction as shown in the cut. They must be set in fire clay mortar but only sufficient to properly fill the joints. If any of the molten metal starts to leak through it does not take long to scour out a large hole. For this reason the bottom and hearth and bosh are all encased in a steel jacket.

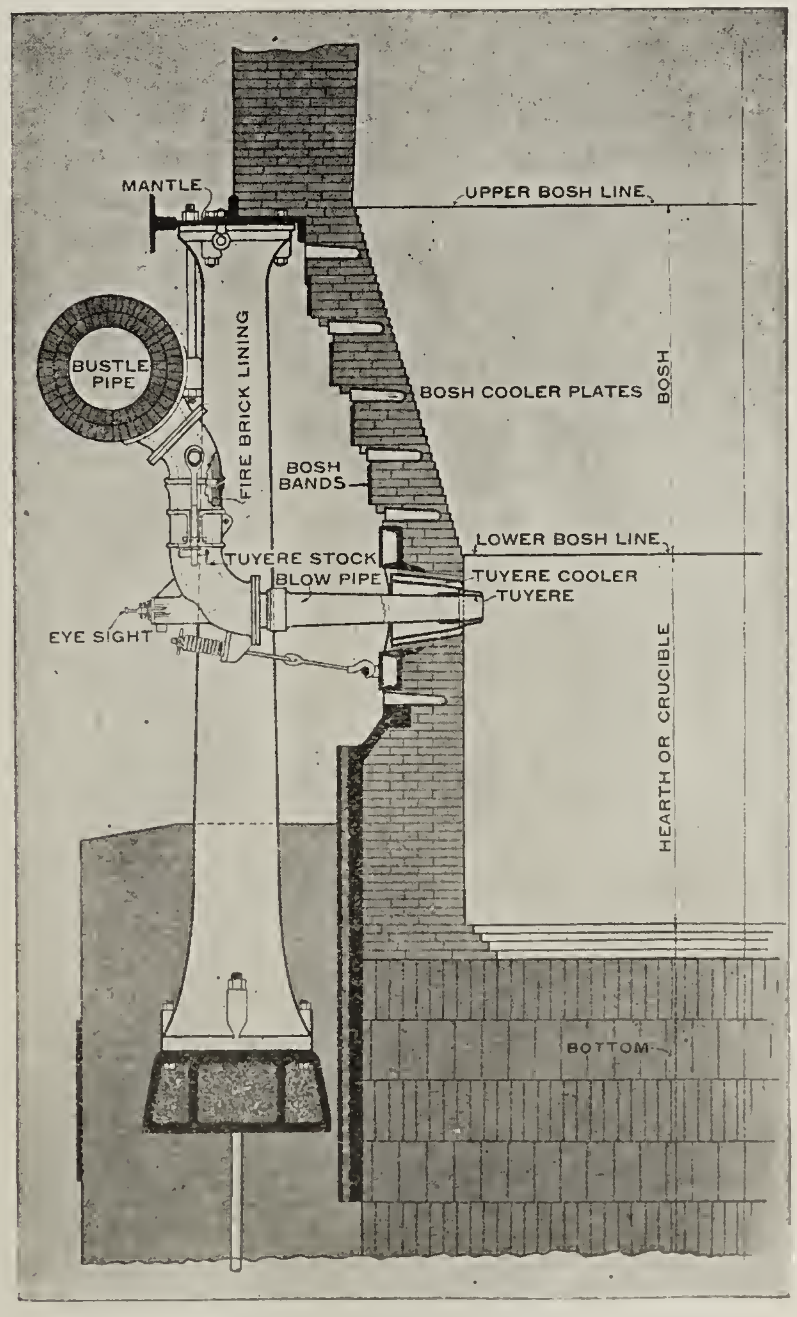
The thickness of the brick walls of the furnace varies as shown in the cut. Near the bottom of the hearth the walls vary from 27 to 36 inches. The thickness of the upper part of the hearth and all of the bosh is made with walls of uniform thickness but the thickness varies all the way from 27 inches to 9 inches depending on the type of construction and kind of outside banding the furnace has. In either event the iron work is water cooled and a part of this cooling is, of course, transferred to the bricks. If it was not for this artificial cooling it would be very difficult to secure sufficiently good refractories to stand up under the loads at the very high temperatures which are necessary.

The lining of the inwall tapers in thickness from about 5 feet at the upper bosh line to from 27 to 41 inches at the top. The inwall is encased in a steel shell. In many furnaces the inwall is cooled by means of cooler plates. These are not placed as close together as they are at the bosh.

There are several ports in the hearth and bosh. The lowest of these is the tapping hole through which the iron is drawn from the crucible. This hole is usually 1½ to 2 feet above the bottom and is placed so the iron can run direct to the pig beds. This hole, which is about three inches square is filled up with plastic clay. It is necessary to break this piece



Blast Furnace Bottom Blocks.



Sectional View Blast Furnace Hearth and Bosh.

out when the iron is tapped off as it burns in and is very hard.

A short distance above the tap hole and placed at ninety degrees to it is the slag hole or cinder notch. This hole must be placed just above the level of the iron when at its highest point. It is used, of course, for drawing off the slag. When the slag is drawn off it has a temperature of nearly 1600 degrees C, and is very corrosive, particularly if the part through which it is flowing is at a very high temperature. On this account a special water cooled metal spout is used. It has an internal diameter of about 2½ inches. A long handled water cooled plug is made to plug the hole and is arranged so that the slag can be drawn out very conveniently.

It is very important that the metal does not rise to the level of this water cooled spout as it would immediately melt the spout and allow the water to rush into the molten mass and cause an explosion.

The next set of ports above the slag hole are the tuyeres through which the hot blast is admitted. There are about ten to fifteen of these equally spaced on a horizontal plane about a foot below the lower bosh line. This puts them about three feet above tap through which the slag is drawn off. Needless to say, the slag must never be permitted to accumulate until it has risen above the tuyeres which are about 3½ to 7 inches in diameter and project into the furnace about 9 inches. The tuyeres are made in a similar manner to the slag notches being water cooled. The cut shows a cross section of the tuyere and cooler.

The cut also shows the method of supplying the blast to the tuyere through the various tuyere stocks which are supplied from the bustle pipe. As shown, the bustple pipe has to be lined with from 9 to 12 inches of fire clay brick and the tuyere stocks with fire clay brick linings from 2 to 3 inches thick. There is another small connecting piece between the tuyere stocks and tuyere known as the blow pipe (see cut.)

The bustle pipe is suspended from the mantle and is about 10 to 15 feet above the floor. It carries the hot blast air to the tuyeres under a pressure of from 20 to 30 pounds and the temperature varies from 900 to 1,100 degrees F. This blast is carried from the stoves to the bustle pipe through a main which is also lined with fire clay bricks. These stoves will be described later.

The gases are drawn off at the top of the furnace through several fire clay brick lined pipe which join and carry the gases down to the dust catchers. This fire clay brick lined lead is known as the down-take.

The dust catcher requires no explanation excepting to state that it is lined with fire clay brick and of suitable capacity. The gases which have lost their sensible heat and part of their latent heat in going through the dust catcher are carried on through the stoves and then burned under boilers. The lining in the dust catchers is usually 9 inches thick and that in the gas pipes 4½ inches.

The gases which leave the furnace are not over 500 to 700 degrees F. in the downcomer under normal operating but the lining is subjected to a great deal of scouring and considerable variation in temperature.

Figure 4 shows a cross section of the brick work in a blast furnace. The approximate thickness of walls can also be noted from this section. The quality and size of fire brick to be used in a blast furnace is as follows:

The lining bricks in the downcomer, dust catcher, gas mains and bustle pipe do not have to withstand a temperature of over 1,100 degrees F. but do have to withstand a very severe scouring action of gases traveling at high speed and carrying a large amount of dust, particularly in the downcomer. There is also considerable change in temperature of these gases so the bricks must not spall. This means that the bricks must be made dense enough to resist the scouring action of the gases and dust and yet porous enough to withstand the temperature changes.

It is necessary to make these lining bricks of special shapes for proper diameter pipes. Most of them are made 13½ or 9x9 by the proper wedge to make the proper curvature.

The hearth and bosh and bottom brick, although of special shapes are all made of about the same quality of material. Clay fire brick are used but must be of the very best quality. The brick used for this purpose will stand a load test at 1350 degrees C. for an hour and a half under a load of 40 pounds per square inch with a very low per cent. settle. Much less than 5 per cent. which is the largest allowable percentage settle. The fusion will also be very high being at least equal to the fusing point of cone 32 or 33.

Havard gives the following chemical and physical analysis

Analysis of Normal Sized Hearth Wall Bricks, 9x4½x2 Inches.

Loss on ignition	.07%
SiO_2	50.57%
Fe_2O_3	3.87%
Al_2O_3	42.73%
CaO	0.25%
MgO	0.34%
K_2O	2.17%

Crushing Strength in Pounds per Square Inch.

Side	5,153 lbs.
Edge	2,113 lbs.
End	1,342 lbs.
True specific gravity	2.33
Porosity per cent. volume	14.92
Abrasion, in cu. in.	0.180
Avg. elongation 9 in.	0.42

Tested at 2925-2983° F.

Specific gravity by volume	1.98
Absorption per cent weight	7.53
Avg. permanent contraction per 9 in. when cool	0.042 in.

It must be remembered that the quality of the material is only one of the essentials of a good fire brick.

The size of grain, percentage of flint clay or grog and many other qualities must be considered. These brick must be able to withstand the scouring action of the materials working down in the furnace, enormous temperatures and loads as well as the physical and chemical action of the molten slag and metal. For a description of slags see the January issue.

Bricks for the inwall or shaft of the furnace must have different properties from those in the lower part of the furnace. At the extreme top just below the bell the bricks are subjected to very little heat but must be able to withstand sudden changes in temperature and severe abrasion. The bricks will warm up between charges and when the bell is opened it will permit a heavy charge of cold material to be thrown against the wall and not only wear it but chill it at the same time.

The bricks become hotter and hotter as the upper bosh line is approached. The changes in temperature are not so great but there is severe rubbing and considerable chemical action due to the reducing and chemical changes taking place in the charge.

Experience has shown that the cooler the brick can be kept the less severe the chemical action will be on the bricks. For this reason cooler plates are inserted in the inwall. The furnace diameter increases from top down to the upper bosh line to permit the expansion of the charge as it heats up. At this point fusion begins to take place and contraction results as the charge begins to change from solid to liquid. During the passage down through the bosh this contraction and liquification continues until the entire mass is fluid. In the

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[1] Refractories and Furnaces, by F. T. Havard.

hearth the diameter remains the same as there is no change in volume of the material. The iron settles to the bottom and floats the slag above it.

The following table shows the properties of two representative brands of brick for the inwall. See Havard.

Kind		Loss Ignition	SiO_2	Fe_2O_3	Al_2O_3	CaO	MgO	K_2O
Inwall (1)	9x4½x2½	.07	54.44	2.53	40.01	0.18	0.53	2.24
Inwall (2)	9x4½x2½	.07	56.07	3.32	39.00	0.12	0.18	1.30

Crushing strength lbs. per square inch			Specific gravity True of value		Porosity % volume	Absorption % weight
Side	Edge	End				
5098	3840	2693	2.34	2.03	12.93	6.36
5248	2170	2710	2.43	2.10	13.30	6.32

Abrasion	Expansion in Inches per lin. ft.	Average permanent elongation per 9 in.
0.120 cu. in.	0.042	0.021
3.072 cu. in.	0.064	....

Of late years the manufacture of fire bricks has been developed to a point where, with proper care, furnaces are producing 1,000,000 tons of iron before the furnace has to be closed down for repairs. These long runs have not been as numerous since the war on account of the tremendous demand for both refractories and iron, and on account of the difficult manufacturing conditions.

The following are a few runs that have been reported:

Size of Furnace	Product and Tonnage		Period in Blast
22x100		1,287,381	
18x80	Bessemer	1,250,000	8 years
22x100	B and Basic	935,000	5 years
22x100	Basic	1,202,056	7-11-9
23x100	Bessemer	1,327,000	6-8-0

The above are larger than the average but show what can be done when conditions are right.

STANDARDS IN THE BUILDING WORLD.

Authorities are much interested now as a possible means to reduce the cost of building, and there is a chance for some relief here. But there is also a chance for confusion and monotony. There are really two ideas of standards involved. One, fostered by the government housing committee in the war period, has to do with standard types of houses. The other has to do with standardizing items entering into construction, like door and window openings and the members which go with them. Both lines offer some chance for economy, but they also hold an element of danger from monotony that should be avoided. We need buildings that are easy to look at as well as good to live in.

PROMOTING BUILDING.

The question of the widest general interest to the country as a whole right now, a question with which the government at Washington, as well as the business men of the country is very much concerned, is that of promoting more activity in building operations. In many cities special funds are benig raised for a campaign of educational advertising to encourage immediate building, and for some time the Department of Labor at Washington has been sending out posters and literature calculated to help the cause.

All realize that one of the greatest industrial needs of the day is activity in building operation. It means the employment of more men directly and indirectly than any other industrial activity can bring about. Also there is an easily apparent need for all the building that can be done. We are just about a full year behind with building operations and should get busy at the job of catching up.

The one explanation of why we hesitate and why building activity must be urged is found in the higher costs and the general feeling that everything will be lower if the prospective builder will just wait awhile. That is the condition which confronts us, and every man who has an idea or an answer that will help meet and relieve the situation has before him an opportunity to get into action with it and help in the great work of promoting early building activity.

Road building promises to soon make up for that war-time delay.

NO TIME FOR WAGE INCREASES.

Broadly speaking, this is no time for wage increases, for the simple reason that wages went over the top during the war period, so that the next natural movement should be downward a bit to a more rational level. For this reason the act of the Builders' Exchange of Philadelphia in deciding to grant no wage increases under existing conditions should meet general approval and be followed by others. It is the wage rate more than anything else that is serving to retard building operations, and the sooner we face this fact squarely the sooner we will get down to business right.

SOLDIERS ARE GETTING OLD JOBS BACK.

Many of the soldiers in the southern Indiana territory have returned from overseas and from the various training camps and it is estimated by William E. Tieman, superintendent of the United States Employment Bureau at Evansville, that fully ninety per cent. of these soldiers have been given their old jobs back. It is expected there will be several school houses and churches built in southern Indiana, southern Illinois and western and central Kentucky during the coming year. Mayor Benjamin Bosse has urged considerable improvement of a public character for Evansville for this year. The congregation of St. John's Evangelical church at Evansville will build a new brick church that will cost in the neighborhood of $200,000. The congregation of the First Baptist church will build a new edifice but it is not expected construction work on the same will start until early in 1920. The county council of Spencer county has made an appropriation of $175,000 for a new court house at Rockport and plans for this building are now being drawn and it is expected that the contract for the same will be let some time in the near future. The Young Men's Christian Association at Evansville will start a "drive" in a short time to raise $125,000 for the purpose of building an addition. The Young Women's Christian Association at Gary, Ind., will erect a new home some time during the coming year. The trustees of Hanover College at Hanover Ind., have employed an architect to draw plans for a new $6,000 Science Hall for the college to take the place of the one destroyed by fire recently. Taking the building situation in southern Indiana as a whole, it is most encouraging and brick manufacturers are looking on the bright side of the trade picture.

THE BOY IN KHAKI.

He came from farm or office, shop or mill—
High-visioned, eager, gay and stout of heart,
Impatient to fulfill his stalwart part;
He braved the dust-clouds of Lorraine, the chill
Gray mud of Flanders, with exultant thrill
In face of death he knew no faltering,
But offered life as just a simple thing
Whose smiling sacrifice some need must fill.
And through his valor Truth and Freedom live—
France, England, Italy with cheers acclaim
His dauntless aid, and Belgium rings with joy;
With loving pride America shall give
All honor to him, and salute his name
With happy homage for each dun-clad boy!

—*Charlotte Becker.*

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

Part XXXV.

Muffle Kiln Construction.

IT is evident that to get a satisfactory life from a muffle kiln, it must be built of the best materials laid up with great care.

When we consider, that the muffle walls are only 2½ inches thick and the muffle crown not more than four inches thick and often as thin as 2½ inches, that the latter is pierced by a number of steam ports extending through both, of the kiln crowns, and that it must make and retain a close connection with the muffle flue, we appreciate the need of the best possible construction.

If the kiln is not properly banded and its walls bulge, as frequently happens in common ware kilns, the muffle wall will follow the kiln wall and become cracked and distorted to its ruin. If the fire bricks are not properly burned the shrinkage in use will settle the muffle and tear the crown away from the steam ports. Should the central flue not settle to the same degree, or should settle at all without being followed by the crown, there will be a separation of flue and crown. The average life of a well built muffle is from forty to fifty burns, and it is remarkable that the structure should remain intact this long.

A common method of building the muffle wall is shown in Fig. 116, all the bricks being preferably special shapes unless the diameter of the kilns is relatively large. The outer wall is backed up by the kiln wall, and cannot crowd out unless the kiln wall gives way, nor can it come in because of the circle. The inner wall cannot crowd in because of the circle, but it can work outward.

An improvement on such a wall is shown in Fig. 117, where instead of ordinary wedge bricks for the ties, a special shape with shoulders is used. An advantage of this plan is that inner and outer wall may use the same shape, or a standard brick if the kiln diameter is not too small.

The central flue may be built of circle bricks but a better construction is illustrated in Fig. 119, showing a tongued and grooved circle block. This makes a strong structure the walls of which may be very thin.

Crowns are often built of half bricks in wedge and key shapes but a thinner crown is possible by using tongued and grooved blocks somewhat similar to those in Fig. 119. These blocks, of course, are special shapes, and each ring has a different radial pitch which requires a special shape. If the kilns are of a standard size the repair supplies become a simple matter, but with a number of sizes of kilns in no way standardized the problem of repairs is increasingly difficult.

A later method of muffle wall construction is shown in Fig. 118. The walls are built of hollow tile made of the best grade of No. 1 fire clay.

The base of the muffle wall in any construction is built thicker to withstand the cutting action of the flame and slagging action of the ash. This thicker wall also protects the ware from the intense furnace heat. The thin muffle wall of whatever construction rests upon this base wall, but for the hollow tile wall a ring distributing flue around the base is necessary to get the gases fully around the kiln circle.

Some Notes in Setting.

We have mentioned the setting and discussed it briefly in connection with the descriptions of the kilns, and we will not here take up the ordinary setting, but instead will take up some special features.

A large factor in common brick setting is the possibility of rapid work even at some expense in quality, and for common bricks the skintle method, or alternate headers and stretchers, has the preference.

Face bricks on the other hand require a setting which will give the maximum quantity of first quality, and the natural color product is set faced in alternate double courses of headers and stretchers, while the fire flashed product is set flat and the setting is such as gives the most uniform and maximum exposure of the faces to the kiln gases. The inexperienced clayworker does not see any reason why flat set bricks may not be in alternate headers and stretchers in single courses or a number of courses, and he cannot understand the importance of the complicated setting used in many instances. We have seen such simple alternate flat setting and the results were as unsatisfactory as the setting was primitive.

The chief loss in the kiln output either in broken bricks or culls comes from the binder courses and the base and cap courses, and the setting should be worked out to keep this loss to a minimum. Some brick products break easily when subjected to kiln strains, or distort (kiln mark) under weight and particular attention must be given to their setting. We have seen kilns of brick irregularly bonded throughout and the strength of the product was such that the whole mass was drawn together in shrinking without material loss in broken bricks. The manufacturer of such bricks is particularly fortunate in his material. Other clays develop such weak products that any bonding in larger masses than three brick benches or any lipping of one brick on another, results in a broken product.

In down-draft kiln setting where the ware extends above the bags the front exposed to the flames must be racked back to prevent it from drawing over and falling into the bags, and the open setting in such fronts must be partially or completely closed to force the gases over the top. Three brick benches, racking back above the bags, and protection of the exposed fronts, are shown in Fig. 62.

Setting in up-draft kilns has been fully discussed and illustrated in connection with the kilns. In addition it may be mentioned that some small yards frequently burn drain tile in such kilns along with bricks. The arches are set with bricks in the usual manner. Above the arches, brick and drain tile are set in alternate benches but the tile benches are enclosed with the usual setting of bricks on the heads to preserve the continuity of the kiln walls. Such a combination of bricks and tiles is not to be recommended. The tiles because of their thin walls burn more quickly than the bricks and since the columns of tiles form chimneys with relatively low resistance, the tendency of the draft is through the tile benches where it is least needed and most likely to do damage. We have seen warped overburned tile enclosed by benches of underburned bricks. In the setting of such a combination care should be taken in setting the arches to reduce the draft spaces in the brick setting under the tile benches and thus force the gases into the brick benches.

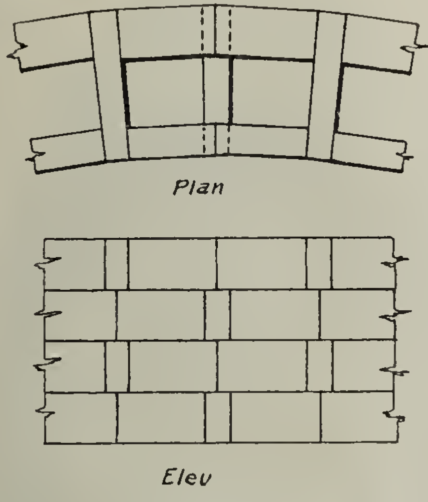


Figure 116.

Variations in down-draft kiln brick setting should not be necessary if the kiln is properly designed and in good condition. This has been mentioned in discussing down-draft kiln bottoms and a study of the bottoms will show that in some of them it may be very necessary to correct the deficiency of the bottom by variation in the setting. It is possible to materially increase the degree of uniformity of the burning by the setting but if the kiln bottom is of a good type and the clay has a fair burning range, there should be little need of variation in the setting. We have experimented quite a little along this line. Starting with uniform setting of 8 on 3 in a down-draft kiln, we change the upper half of the kiln to 7 on 3 on the principle of less resistance and a rapid movement of the gases in the upper part of the kiln, thus conserving the heat for the lower part.

We next went to the opposite extreme and set the lower half 7 on 3, and the upper 8 on 3, and topping out with two courses set practically tight. We provided a square vertical flue in the center, and midway of the height of the setting were distributing flues from the vertical flue to the outer circle of the setting. The principle involved was to burn the upper muffled mass of bricks by conduction and the lower mass by convection. The heat distribution was satisfactory, but considerable loss resulted from the distributing flues, and also some damage accrued in consequence of the excess weight above and reduced support below. We finally came back to the original setting of 8 on 3 throughout the kiln, but by this time we had learned that there were greater possibilities in the handling of the fires and control of the kiln draft than in the different methods of setting.

(To be continued.)

IS THE COST OF CONSTRUCTION HIGH?

Under the above head a recent bulletin of the Division of Public Works and Construction Development, Department of Labor, Washington, D. C., furnishes some information that should be useful to those engaged in the work of boosting the building game. Here are two of the more interesting paragraphs from this bulletin:

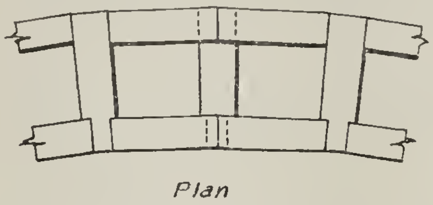


Figure 117.

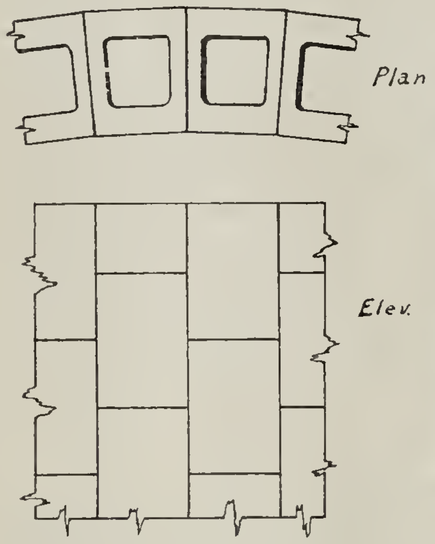


Figure 118.

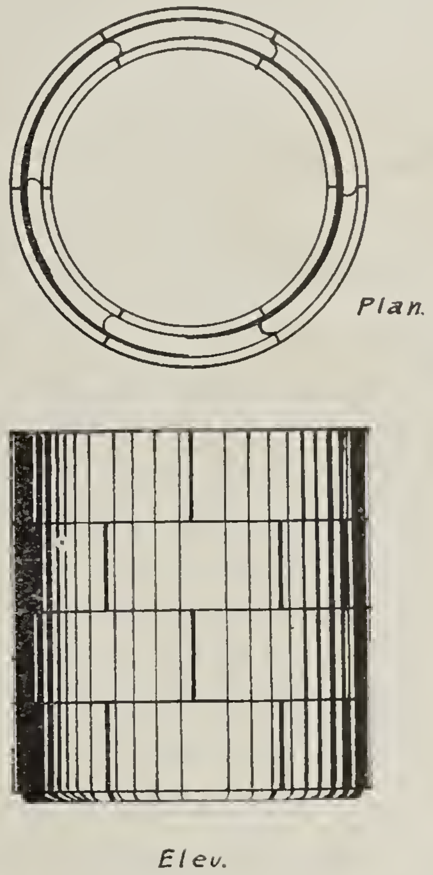


Figure 119.

"Although construction costs are higher now than in 1913, the union wage scales in the building industry have not advanced as rapidly as have the costs of living, while building material prices are not as high as are commodity prices. Wage increases in the construction industry, speaking generally, lagged behind because that industry was utilized only to a small degree in war production. The level at which the cost of construction stands has been pushed up only slightly by temporary war conditions. It has been fixed mainly by conditions that cannot be materially changed for years to come—by the tremenduous expansion of money and credit.

* * *

"The fact is that the cost of construction is not high today. It is lower compared with food, clothing and commodities in general. It is high only in comparison with its own pre-war level. Commodity prices will undoubtedly recede because food and clothing and many other things are affected by special war conditions; for example, scarcity of transportation which prevented shipments from distant countries to the Allies. But they cannot fall to the pre-war level.

"But, although some readjustments in the wages of individual trades and in the prices of individual building materials may take place, the cost of construction will not come down to such an extent as to endanger a judicious investment made today in the erection of a new building. * * * "

N. B. M. A. ANNUAL BANQUET

Pittsburgh February 6, 1919.

ALWAYS THE CROWNING social event of the National Convention, the banquet at the Thirty-third Annual meeting was a most gratifying function. A good dinner accompanied by fine music, both instrumental and vocal, were but a prelude to the real entertainment, which included the most brilliaont after-dinner speakers that have gathered at this yearly feast. It was indeed a feast of oratory such as banqueters seldom hear. When coffee had been served and the local committeemen had passed cigars to the gentlemen and cigarettes to the ladies, the latter were of the chocolate brand, the guests were invited to gather near the head table. They did so joyously, the tables being moved, and after a song by an exceptionally fine mixed quartette. Toastmaster Laughlin, by his ready wit, kept the Toasters on their toes, so to speak. Though the speakers had messages of serious import, as the following report will reveal, there was a mirthful spirit that added zest and interest to every toast.

President Robb: Ladies and gentlemen, we have with us a toastmaster who tells me he had some experience long years ago on a brickyard; at least, I heard him telling my wife—I only heard it second-hand. The toastmaster, I am told, is now a very prominent lawyer of Pittsburgh, and I am also told that if any of you get into trouble he will defend you and donate half of his fees to the next banquet we hold in Pittsburgh. This will be very liberal of him, and I am sure he is a very liberal gentleman; I have discovered that much. Our secretary has deprived me of the only opportunity I had of entertaining you, that of singing to you; he has provided the singers, so that part of the program is entirely out of my hands for the present, and I take pleasure in introducing to you our toastmaster, Mr. John E. Laughlin, of Pittsburgh, who will preside. (Applause.)

TOASTMASTER'S INTRODUCTORY.

Toastmaster Laughlin: Ladies and Gentlemen—You may have observed in this morning's paper a picture of a rather good looking young man. If you did, and if you read the article under the picture, you also saw that to him was assigned the subject, "Pittsburgh, the Straw in the Nation's Bricks." I am not sure that I am capable of discussing that subject. I never was a farmer; therefore. I do not know much about straw. I do, however, know something about bricks. Once I thought I might become a brickmaker. When a youngster going to school I got a job in a brickyard. The man who owned the brickyard had only one eye and he worked in the yard himself. On this particular occasion he was working up in the kiln and we were down below catching the bricks as he threw them down, and as long as his good eye was working it was all right. Unfortunately for me, a part of a brick got in his good eye and he closed it, continuing, of course, to throw the bricks down. From that moment I ceased to have any ambition to become a brickmaker. I did not think much about bricks for a half hour or so until I came to. (Laughter.)

It is the province of a toastmaster to commend his audience and, of course, I do that, particularly the ladies. In their presence, however, I must say I am somewhat abashed. The heart goes astray sometimes in the presence of visions of loveliness and delicate graces and, as a result, one's thinking faculties get all jumbled up. As I look over the program, I have this criticism to make: It does not embrace the ladies. I rather fancy the men of this organization are gallant enough to see to it that part will be complied with before the night is over. (Laughter) It used to be the fashion not to bring ladies to banquets. The fact that they are here tonight is an indication to me that we are progressing. The ladies are getting votes now-a-days and I rather fancy the time is not far distant when they will be getting our seats in the street cars. (Laughter.) After all, why should not the ladies be by our side? I think Doctor Cartwright will agree with me when I say that it was from the side of man woman came and naturally she belongs there.

BRICKS—The first mention of bricks, I believe, is in the Bible. It was in the garden of Eden, I think, that Eve gave Adam a gold brick. (Laughter.) Then there was Pharaoh—

Charles F. Clippert, Detroit: Mr. Toastmaster, you probably are not aware that it is a rule of this association that anyone mentioning Pharaoh, or the Children of Israel, will have to pay a fine of Five Dollars. (Laughter). Am I right, Mr. Secretary?

Secretary Randall: Sorry to say, Mr. Toastmaster, he is right. (Laughter).

Toastmaster Laughlin: I am game and I am willing to let Doctor Cartwright be the referee if I mentioned that word (Laughter.) You thought I was going to say it again, didn't you? I will let Doctor Cartwright decide. I understand you to say there is a rule that if anyone mentions—Now, you be careful, Doctor Cartwright, or you may have to put up $5.00. Speaking of games, there is a game of F-A-R-O (Laughter) I am not a Biblical student but I submit to Doctor Cartwright that the pronunciation of the Biblical name is "ao." I am not sure, and I am not going to say the first part of the word, but the last syllable of that word is spelled "ao" or "aoh." Do you see? I was talking about the game. (Laughter.)

John E. Laughlin, Pittsburgh, Pa.

Mr. Hammond: I move the fine be remitted.

Mr. Wilson: I second the motion.

(Laughter.)

Toastmaster Laughlin: They used to say here in Allegheny County that bricks were used to keep peace in the Democratic conventions. (I am going to make an admission here in the presence of Mr. Burke, a noted member of the bar, that I am a Democrat and am proud of it.) They used to say also, the Pittsburghers here all know this, that when a Republican parade came down Wylie Avenue, the good stalwart Democrats (Oh, if we just had some more of them now) used bricks, not for the Republicans to walk on, but to walk under. I wish also, being a Democrat, that we had some of them today, to get square with these Republicans who are enclosing bricks in the bouquets they throw at us Democrats for the way we ran this war. I am glad I have one Democrat up here by my side.

I think is was Hallock who said, "The monarch fears the printer's rage, the brickbat's range." I do not know that Hallock was right. I know of one monarch who was not much afraid of the printer's rage. He did not go by the name of monarch, he went by the name of kaiser. Since the battle of the Marne, at least the second battle, I am inclined to think he was afraid of the brickbat's range. Lucky for him, Holland is out of the range.

I was asked last night to become Toastmaster and was told I would know the speakers. I do not know them and perhaps it is better I do not. If I say anything in approbation of them, it is because I do not know better. I am going to change the program somewhat owing to the fact that one of the speakers must leave. Like myself, he is a lawyer and, like myself, he is —Well, there are two good lawyers in the city of Pittsburgh at least, and the other one is Mr. Burke. (Laughter). He is always ready and willing to make a speech and he has the ability. I remember not so very long ago Mr. Burke made a mistake up in the Criminal Court and his client was convicted of murder in the first degree. It was the electric chair for him. In Pennsylvania, witnesses are called to the execution, to be sure, I imagine, that the man is electrocuted, and Mr. Burke was there. The sheriff, his executioner, said to the prisoner, "You have five more minutes to live. Have you anything to say?" The condemned man said, "I have nothing to say," whereupon Mr. Burke said, "I would like to say something." He made his customary Thrift Stamp speech and, I am informed, induced the doomed man to buy of his wares. (Applause and Laughter). Seriously, I would like to say, as a Pittsburgher proud of another Pittsburgher, and as a lawyer proud of another lawyer, that Mr. Burke is one of our most illustrious citizens, a former member of Congress from this city, representing us, or rather the Republicans, not me very much.

Charles F. Clippert, Detroit, Mich.

During the war campaigns, he gave of his ability unstintedly. He was selected by the Director of War Savings to represent the state. There was no accessible place he did not go. To the inaccessible places, he always sent me. As an evidence that he performed his business adequately and well, Pittsburgh in her Thrift Stamp sales, as well as in every other war activity, averaged up to the best. I have no doubt her record in Thrift Stamps was due to Mr. Burke's leadership. Inasmuch as he likes to make a speech, but does not care particularly to listen to one, he will leave as soon as he is through. I take pleasure in introducing to you the Honorable James Francis Burke. (Applause).

REBUILDING THE WORLD.

"Build Sure at the Beginning."

HON. JAMES FRANCIS BURKE, PITTSBURGH, PA.

Mr. Toastmaster, Ladies and Gentlemen:

I am very grateful for the opportunity of being here and to address this representative body.

There never was a set of men or women who had the privilege of sitting anywhere in any age with a purpose and a duty so comprehensive, so world-wide, as the men and women who are sitting about the festal boards everywhere in the age in which we live.

The rebuilding of the world is a process over which we are beset at this hour with some anxiety. Those of us who have given any thought to the contours of the world had concluded that the world had been completed, that the contract had been completed and the structure had been perfected. Beginning first with the time when human beings began first to associate with each other, when they came down to the banks of the stream to catch the fish on which they fed, to see each other for the first time, and they realized they could get meat without killing each other, they associated themselves together and went back into the wilderness and built caves in the hills, in which they lived. Then they went back into the country and picked out inviting places and associated themselves into tribes and became a little more advanced in civilization. And each little cluster gathered around a central spot which they regarded as somewhat sacred to themselves, and in order to know where each belonged, they laid down a little stone, and that was called earth stone. That was the first evidence in civilization that a man was becoming used to loving any spot on earth, and that stone known as the earth stone, finally was surrounded by another little circle called a wall, and over that was placed a roof, and finally a family was created, and that earth stone of the first age of civilization became the hearth stone of today; and as that hearth stone was surrounded by the family and the sacred relation of the domestic circle was established, people came to love their home and their hearth stone and to respect and love those who were members of that circle. Before that had attained any degree of perfection, it was the fashion of other tribes traveling from place to place, finding a particular tribe in possession of a very inviting territory, to descend upon them and murder them, or drive them out and take possession of what they called their happy hunting ground. The happy hunting ground was the first community in the history of civilization, for the tribes drove them out in order to conquer the other tribes, and the first war in the history of the world was the war of conquest. So on down through the seven thousand years of yesterday, civilization has traveled a pathway, beginning with the savage that found his way to the bank of his stream in search of the fish on which he fed, from the widerness in which he found the animals on which he lived, and upon whose coats he depended for shelter for his body from the elements.

To the present day man has been traveling the pathway that has marked the progress and brought about all the elements of civilization by which 1,700,000,000 people were surrounded until August 1, 1914, when the greatest war of the world broke out. At that time Christian men and Christian women believed that civilization had attained a degree when an era of destruction, such as we have passed through in the last four years, was impossible even to contemplate by man. Yet with all of the work that had been done, all the sacrifices that had been made, with all the cities that had been builded, all the streets and highways whose foundations had been laid and over which civilization had traveled, and with all the temples and shrines of art, we found ourselves presently thrust upon a scene in which the most civilized of all the nations of the earth, the civilized peoples of the most civilized age in which God had permitted his children to live, were slaughtering each other by the millions. As a consequence of that bloody chapter, 10,000,000 dead boys sleep under the newly-made graves of Europe tonight; 10,000,000 more are crippled or maimed, or missing; ten, twenty million homes tonight have mothers and widows and sisters and children and broken fathers who are sending their prayers to the great and just God that reigns above us all, that national butchery shall be no more and that wars have ended forever. Whether their prayers shall be answered, and whether that hope shall be realized, depends upon whether the work of reconstruction going on at this time shall be successful; whether the great diplomatic leaders now assembled in the greatest body that ever congregated in the history of man shall plan better than our fathers; whether the history of the past shall be repeated again in the years before us.

No military conflict in history ever attracted wider attention or aroused a keener interest in its developments than the great battle for final peace now in progress at Versailles. The guns of yesterday are silent, the charges of troops halted, and the strategy of military geniuses in abeyance, while through the maze of imposing formalimalities and impressive courtesies the most skillful diplomats of the age maneuver for power and points of vantage in a conference called to perfect treaties and perpetuate the peace of the world.

Broadly speaking, the task before the conference is not only to transform the present temporary peace into permanent form but to obliterate as far as human ingenuity can do so, all those racial, geographical, political, and economic sore spots whose existence in the past have at intermittent periods thrown the body politic into violent convulsions.

There are those who believe that the proposed soothing process of arbitration which its advocates have in mind will prove comparatively easy of application and entirely effective in preventing future wars, while others regard it as a fantastic vision entitled only to a place in the cloudland of dreams and idealities.

Popular interest centers in the discussion of the proposed league of nations, and the most pronounced diversity of opinion exists regarding the practicability of creating an international or supernational body which will possess not only the legal authority but the necessary armed force to compel nations to yield to its decrees when the peaceful process of arbitration fails.

The World's Conference.

Peace conferences and a study of the temporary or enduring character of their results offer a wide and fascinating field for intellectual diversion. While good has come from many of them, no conference has ever been held that successfully guaranteed or was followed by a permanent peace.

Whether Versailles is to mark the birth of a new era of never-ending international harmony is a question for whose reply I had rather depend upon the historian of to-morrow than trust the prophet of to-day.

Most of us fervently pray that it may succeed. Every believer in Christ's gospel of "peace on earth and good will toward man" sincerely hopes for its realization, but no student of history or analyst of the ever-present elements of human selfishness and national ambitions will discount the dangers of discord in the days to come.

The term "peace conference" is a misnomer when applied to all the treaty-making bodies that have followed the cessation of hostilities. Those who believe that suspicions disappear, that ignoble aspirations cease, and that good will takes the place of all the baser impulses and ambitions of men the moment peace delegates are chosen are ignorant of the events of history.

Beginning with the famous league, known as the Truce of God, which medieval Christendom brought about over 900 years ago to put an end to feudal wars, and which was supported by solemn religious oaths and armed forces, down to the present day, peace conferences have been followed by wars of increasing area, atrocity, and destruction as time has passed and as civilization is presumed to have developed.

Westphalia—1648.

The great conference that produced the treaty of Westphalia in 1648 came at the end of 30 years of bloodshed; but that the animosities and bitterness of actual warfare survived the hour when arms were stacked is evident from the fact that three full years elapsed before the delegates chosen to negotiate the real terms of peace could even agree upon a place of meeting. Furthermore, when they did it was at two different places, in two different diplomatic divisions, and 13 years elapsed before that memorable treaty was finally agreed to by all the parties in interest.

Inasmuch as religious prejudices inspired the division of European territory in that treaty it, of course, rested upon a foundation of sand and lasted about as long as such a compact could be expected to survive.

In that congress there was not even attempted the creation of a universal league of nations.

Utrecht—1713.

The treaty of Utrecht was negotiated in 1713, when France, Great Britain, Holland, Prussia, Savoy, Portugal, and Spain ended the bitter war over Spanish succession, and placed the Bourbon, Philip, on the throne, the crowns of France and Spain never to be united, gave Newfoundland and Nova Scotia to Great Britain, and also gave her Gibraltar and Minorca, and conferred upon her the right to ship African slaves to America. While territorial traces of this convention survive to the present day, yet despite all the avowals of friendship that followed it, affecting millions of people of different colors, customs, and castes in Africa, Europe and America, peace soon gave way to war and the rulers and boundaries changed again with the whims of succeeding periods.

Paris—1763-1898.

During the conference at Paris between France on the one side and Great Britain, Russia, Austria, and Prussia on the other, in the winter of 1814, Napoleon, who previously had abdicated at Fontainebleau, hearing of the bitter controversies between the peace delegates, left Elba, landed at Cannes on March 1, and entered Paris on March 20. The troops sent out under Ney to resist him joined him, and afterwards fell with him at Waterloo. Thus the convening of that conference was not succeeded by any more international harmony than we have at present under the surface between Prussia and Poland, Greece and Turkey, Italy and Czecho-Slovakia, and other conflicting elements in Europe today. In fact, its own discordant deliberations had much to do with bringing about the "Hundred Days' War."

At none of the peace conferences of Paris, beginning in 1763 and ending in 1898, was a league of nations evolved. Nor was it even suggested in the conference of 1783 between France, Spain, Great Britain, and the United States, when American independence was acknowledged and ratified in treaty form.

Vienna—1815.

The notable Congress of Vienna, convened in September, 1814, in response to Austria's invitation to all her diplomatic visiting list, except France, proceeded to arrange and adjust all the powers and principalities disturbed by Napoleon. When it concluded its sessions, in June, 1815, it had formed "The Holy Roman Alliance"—said to have been neither holy nor Roman—and the first real dream of universal peace for the moment impressed the world with the prospect of its permanency.

This alliance was formed by the sovereigns of Russia, Austria, and Prussia, and afterwards was joined by all European sovereigns except Rome and England, although some dispute exists as to England's real attitude and relation to it.

It professed to unite all in a Christian brotherhood, while in reality it was designed for the sole selfish purpose of perpetuating its own group of dynasties.

And while it was the most pretentious of all the peace problems of history, its harvest of harmony ended within 15 years when the French Revolution of 1830 and other local conflicts kindled new flames in Europe.

Nor was this plan a newly devised one, any more than is the "league of nations" which is being so widely discussed today. In fact, the idea of a league of nations was originally outlined and published by Abbe St. Pierre, in 1713, as a scheme for perpetual peace, and subsequently submitted by the Russian Emperor, Alexander, to Pitt in 1804, and was ultimately crystalized into the "holy alliance" of 1815. Incidentally, it is interesting and important to recall that it was in opposition to the ambitious schemes underlying this very "holy alliance" that President Monroe injected into his famous message of 1823 the admonition which laid the foundation of the Monroe doctrine and frustrated the imperial designs of Europe on the Western Hemisphere during the century that followed.

Versailles.

By comparing it with all the great conferences preceding, it will be apparent that the body now in session at Versailles is confronted with problems greater in number, more vital in character, and more far-reaching in their consequences than any other in the world's history.

Hence every step in its construction and every chapter in its proceeding is of absorbing interest.

The place of meeting is governed by precedent and propriety. It is on the soil of a victor, and at a point agreeable to all of the triumphant powers interested in its outcome.

The supreme allied council, or steering committee, consisting of the United States, France, England, Italy and Japan, by which general control over all preliminaries was exercised, developed and acted by common consent and not in pursuance of any fixed inflexible rule of law or precedent.

The apportionment of representation is a matter temporarily within the discretion of the supreme council, but finally within the jurisdiction of the congress itself.

The right to preside is governed by well-defined rules of international courtesy and belongs by right to France, in which the congress is held. Hence, the election of Clemenceau.

Whether all the delegates shall participate in all the proceedings is within the discretion of the body itself.

In addition to the main delegates there are also secondary or technical delegates, who may speak when requested to do so, regarding any of the subjects of which they have made a special study or upon which they are admitted to be recognized authorities.

Whether every nation that enters shall be held responsible for the future enforcement of peace among all the nations who may engage in disputes over alleged violations of conditions agreed to by this conference is for the conference itself to determine and the treaty or treaties to specify.

What language is to be the medium of expression in the conference is one question, while that used in the final written instrument is another. One language alone or several may be used during the conference, and the same rule applies to the treaty itself.

When the treaty is between two distinct tongues the custom is to run it in parallel columns in both languages and to sign in duplicate.

When the treaty includes covenants to be signed, say, by the United States, France, China, Japan, Greece, Italy, Germany, and Russia, speaking many distinct tongues, they may all sign a single document in French, which is "the language of the courts," or they may be in as many forms and languages as the signatories may agree upon.

Selection of Delegates.

The manner of selecting delegates varies in different countries. In the United States it is wholly a presidential function, and, while controversy has waxed warm over the right, as well as the propriety of the President to act directly rather than by delegating the duty to others, there is no doubt whatever but that he has the legal right himself to act as the only delegate, or as one of many delegates, if he deems it proper to do so. There is nothing in the Constitution which renders it impossible for the Chief Executive in this regard to do directly what he may do indirectly.

This does not mean, however, that there can not be a serious and an honest difference of opinion regarding the wisdom of the President's recent and present course.

Whether the dignity and the influence of the presidential office will be impaired or enhanced, whether the power and the prestige of the Nation itself will be added to or diminished, are questions upon which wise men will differ, and over which partisans will indulge in controversy whose bitterness too frequently blinds the participants to the virtues of each other's attitude.

Whether the admitted intellectual force of the man himself and the unquesioned prestige with which the presidential office endows the individual wherever he may go, renders it imperative that Mr. Wilson in the capacity of Chief Executive impress his presence and his views upon the body whose decisions are fraught with such vital consequence to the American people and to the world, or whether, in keeping with our loftiest traditions and in accord with the examples of our Presidents from the days of Washington, it were wiser for him to invoke the use of the brains and experience of some of the great men of our country for the immediate work of the peace congress, as all other nations are doing, and reserve to himself as the final arbiter the right to ratify or reject whatever agreement may be negotiated will no doubt continue to be a seriously disputed question for many years to come.

A multitude of earnest and well-informed people believe that the President can not afford to deny the American people the full benefit of his superior intellectual attainment on the scene of action when so precious a price as the permanent peace of the world is at stake. Many others, equally well informed and patriotic, declare that he can not afford, directly or by implication, to lead the people of the world to believe that among the hundred million Americans there is no set of men of adequate experience or of sufficient intellectual force and capacity, without his aid and presence, capable of meeting and matching the wits of other nations, and faithfully and competently protecting the interests of this mighty Republic in any conference on any subject in any section of the world.

President or Delegate?

Some suggest the fine-haired distinction that Mr. Wilson is acting as premier and not as President. If this be true, can the President legally or with propriety divest himself of his office, hang the presidential hat in the hall of the Trianon, and enter a chamber which chokes with the spirit of controversy and take his place as a delegate among the rank and file of the subordinates of other nations?

If he can, what becomes of the presidential office and who is our Chief Executive during the interim? This question recently brought from one of the most zealous senatorial champions of the President the suggestion that he was at Versailles not as President nor as premier, but as the Commander-in-Chief of our armies.

Others quickly pointed out the inconsistency of this claim by suggesting that if he is there in a military capacity as our army's chief commander, he denied himself a great opportunity for service by waiting until the guns were stacked and the fighting ceased before he entered France. I believe the suggestion of his zealous champion does the President an injustice.

Right to Ratify.

When we recall the processes by which treaties are perfected another serious question involving the President's direct participation presents itself. In England the delegates are named with full power to act, without reserving the right of parliamentary rejection or modification, and in other countries the procedure differs from ours, but no treaty can become binding upon the United States or a part of the supreme law of this Republic until certain well defined steps are taken.

First it is attested by the signatories at the conference, thence it goes through the Secretary of State to the President, and by the President it must be submitted to the Senate, not for ratification, but for rejection or approval.

The Senate may pigeonhole it permanently, it may discuss it for any length of time, or it may adopt a resolution approving it, without a single word of debate. Then comes the final act of ratification, which belongs to the President and not to the Senate, as popularly understood.

Can the President at this stage veto a treaty which his plenipotentiaries have negotiated and which he has invited the Senate to approve? He can, and he may do it by affirmative written declaration or by withholding his signature and consigning it to the waste-basket.

Here, however, arises another question. If while the Senate discussed the treaty new conditions arose or the President changed his mind, could the President veto or withhold his signature as President from a treaty which personally he had negotiated and signed as a delegate and which he had invited the Senate to approve? No doubt he could, but would not his presence as a delegate and his signature as such prove somewhat embarrassing, to say the least? On the other hand, is the probability of such a dilemma arising sufficiently strong to forbid his acting as a delegate in the first instance?

Problems of the Conference.

We come next to the problems of the conference itself. These are varied in character and many in number.

First. Shall the President's doctrine of "open covenants openly made" prevail? If so, what of the new controversies the publication of every bitter expression in debate might engender among the rank and file of people whose patience and poise might not equal that of trained diplomats who learn to give and take in discussion?

Second. The important questions to be settled between the central powers and the allies, including evacuation, restoration, and indemnities. This includes the disposition of Germany's colonies and the political interests of the millions of human beings affected; it also includes the determination of the economic and financial burden to be imposed upon Germany and Austria after they are stripped of the territory of which each is to be deprived in the readjustment, and also the question as to whether they shall pay in full all the damages their wicked destruction wrought upon nations. If the latter course meant their bankruptcy and ruin and meant defeat of the purpose itself by rendering them incapable of carrying it out, shall they be compelled to pay all they can bear within a period of 50 years; and if so, how shall the indemnities thus paid be divided among those who suffered losses?

Shall they be compelled to repudiate their home debt of billions of dollars, held by their own people, until all the obligations due all people of other countries are liquidated?

Third. The treatment to be applied to Russia in order to avert the further spread of Bolshevism and anarchy.

Fourth. The settlement of 26 dangerous and irritating territorial disputes in Europe, in addition to those in Asia and Africa.

Fifth. The definition of and an agreement regarding the so-called "freedom of the seas."

Sixth. The manner in which the economic barriers between nations shall be removed.

Seventh. The definite formation of a league of nations, with a clear and distinct understanding as to who shall compose it and what its powers and methods of procedure shall be.

Let us deal briefly with these problems in their order.

The first involves No. 1 of the President's 14 points: "Open covenants of peace openly arrived at," and a process by which "diplomacy shall always proceed openly and in the public view." This would mean not only the end of secret treaties and agreements, but also the end of all secret sessions and discussions attending their negotiation. One school advocates pitiless publication of every expression of every delegate regarding every question affecting all the nations involved in settling their disputes, on the theory that the light of day will prove a universal antidote for the evils of secret diplomacy.

The other school declares that such a course would add fuel to the flames already kindled, intensify the hatreds and animosities of races, and sow seeds of discord among those who would not be inclined to display the moderation and exercise the self-control of which great intellectual leaders and trained diplomats are capable and to which they are accustomed in settling serious disputes.

Literally, this would mean that the executive sessions of the United States Senate, in which our most delicate and important affairs with foreign nations are discussed, are to be abolished, after continuing for 140 years without serious criticism.

Also it would mean that even the President's Cabinet, when it meets to discuss an important treaty with a foreign power, shall throw open the doors and invite the eager ears of foreign diplomats and spies to eable every word of dissension in our own councils across the seas to foreign offices.

But that this expression does not mean what the country first understood it to convey when the President used it in his speech of January 8, 1918, is apparent from his letter to Secretary Lansing on March 12, two months later, in which, in reply to a query regarding the Borah resolution to compel the Senate to conduct all treaty discussions in open session, the President said: "When I pronounced for open diplomacy, I meant not that there should be no private discussions of delicate matters, but that no secret agreement should be entered into, and that all international relations when fixed should be open, above board, and explicit."

Inasmuch as under our form of government it is impossible to have a secret treaty, and that no such treaty ever existed in the history of this Nation, the President's declaration for publicity after the fact is nothing new—in reality, it is more than 100 years old.

The second series of problems need only be named to reveal their difficulties, and as I have already mentioned them their repetition is unnecessary.

The importance of the third, involving the treatment of Russia, is heightened by the fact that her betrayal, which constitutes one of history's most shameful stories of bribery, bloodshed, and national disintegration, is being followed by a reckless disregard for law which not only imperils Europe, but threatens to fan into flame the smoldering embers of anarchy throughout the world.

The fourth problem includes a number of territorial disputes, several of which so seriously threatened a new outbreak of war that the peace congress a few days since was compelled to issue a warning to several of the small nations involved.

Let us glance over Mowrer's array of disputes and wonder how and when perpetual peace is going to dawn in Europe:

1. The Aaland Island, now held by Russia, apparently claimed by Sweden.

2. Heligoland, now held by Germany, probably claimed by England.

3. Denmark demands the return of Schleswig from the hands of the Germans.

4. Belgium seems to be preparing to demand from Holland the Province of Limburg, which stretches like a peninsula between Belgium and Germany and forms an awkward barrier.

Luxemburg's Alternative.

5. Luxemburg will be called upon to decide whether she prefers to be French, Belgian, or independent.

6. France desires to neutralize the left bank of the Rhine.

7. France wants to include the Sarre Basin in Lorraine.

8. Italy claims part of the Austrian Tyrol.

9. The Italians and Jugo-Slavs are engaged in bitter controversy over the Dalmatian coast, which both claim; they are intrenching opposite one another where the lines meet north of Fiume.

10. Northern Albania is claimed by the Jugo-Slavs, the Valona region by Italy and southern Albania by Greece, while the Albanians themselves desire independence.

11. Greece claims all of Thrace, including Constantinople, from Bulgaria and Turkey.

12. Greeks, Serbs, and Bulgars all demand favorable frontier rectifications in Macedonia.

13. The Jugo-Slavs seem to claim the strip running from Graz to the Danube east of Vienna so as to give them a common frontier with the Czecho-Slovaks.

Bitter Protest by Hungarians.

14. The Hungarians protest bitterly against the newly declared southeastern frontier of Slovakia.

15. The Poles, Czechs, and Germans all claim Silesia.

16. The annexation of the banat of Temesvar has been proclaimed by both the Jugo-Slavs and the Roumanians, while the Hungarians are unwilling to relinquish it.

17. The Roumanians occupying Transylvania are driving out the Hungarians.

18. Roumanians and Ruthenians are fighting over Bukovina.

19. The Bulgarians want a favorable frontier rectification in the Dobroges.

20. Roumanians are occupying Bessarabia, which the Ukrainians also claim.

21. The Poles and Ruthenians are fighting over eastern Galacia.

22. The Germans and Poles are fighting over Posen.

Claims by Poland.

23. The Poles claim the valley of the Vistula and Danzig from Prussia.

24. The Poles claim east Prussia.

25. The Poles claim Lithuania, which seems to prefer independence.

26. The Bolsheviki are invading the Baltic Provinces, which seem to desire independence.

The fifth problem of the Congress involves a definition and enforcement of the President's declaration for "freedom of the seas."

If this means the right of unmolested travel for all law-abiding people upon the great highways of the world beyond territorial waters, many assume that the enjoyment of such right was made certain the day the German fleet surrendered, the Prussian mine floater was discovered, and the hell-born submarine ended its mission of murder.

If it is designed to end England's undisputed sway as mistress of the seas, the present plan of our Navy Department to equal or surpass England's Navy in 1925 should set at rest the apprehension of those who are unwilling longer to intrust her with that power.

If it means the dismantling of the navies of England, France, and Japan, then, too, must it mean the end of Navy building in America and ultimately an unprotected American merchant marine seeking sales for its cargoes in the great markets of the world.

In fact, the list of things it might and might not mean is too formidable to repeat, and for this reason the world eagerly awaits its official definition and will welcome its enforcement if it proves just and practical.

The sixth problem involves the removal of all economic barriers between nations.

While the President, who is also the author of this suggestion, has not defined just what idea he intended to convey, many of his friends and political adherents declare that this does not mean, as some assert, the tearing down of customhouses and the repeal of all tariff and customs revenue laws. That what the President meant, as he said in his recent notes to the Senate, was that while all nations were to impose whatever customs tariffs they saw fit, they must impose them against all countries alike.

Those who disagree with the President quickly point out that this would forbid the United States maintaining a reciprocity agreement with Cuba, which has proven so beneficial to both; that it would be an insurmountable barrier against our building up trade through reciprocity treaties with South America; that it would compel us to allow Germany and China and all other countries that saw fit, regardless of their labor conditions, to enter our markets on the same terms as any other nation with which we sought a businesslike reciprocal trade agreement.

Whatever it means, the peace conference will have no easy task in solving these economic problems to the entire satisfaction of the world.

The League of Nations

Lastly we come to the league of nations, the dream of the ages, a dream that its vast army of intelligent and well-meaning advocates declare and believe is soon and certain to be realized—realized as one of its great advocates declared, because Jesus Christ, the Savior of Man dreamed of it; because David, the sweet singer of Israel, dreamed of it; because George Washington, the father of our Nation, dreamed of it; because the poet Tennyson dreamed of it; because Robert E. Lee dreamed of it; and because millions of mothers in the broken homes of the world are dreaming of it today; and, finally, because the spirits of 10,000,000 dead men who but yesterday fell victims to the folly and criminal shortsightedness of man are whispering their supplications into the ears of a just God that national butchery shall end and war shall be no more.

And that is why, with the burning spirit of crusaders, the advocates of the league of nations believe in their cause.

That, my friends, is why their zeal is entitled to the respect of all, including the equally great body of well-informed people who realize that until humanity is itself stripped of its selfishness, until nations are divested of their ambitions, and all the prejudices of race, class, and creed and clime have disappeared from the earth, a binding league of nations possessing power to institute and perpetuate the peace of the world will continue for centuries to come, as it has for centuries in the past, a mere vision, a companion of the stars, beyond the reach of man.

The advocates of the league declare that as nations are as civilized as the people who compose them, there is no more justfication for their adhering to war to adjust their disputes than for men themselves to repudiate courts and go back to the brutal process of the "wager of battle" which prevailed among the tribes of former days.

That, as a matter of fact, the frightful destruction of life and property involved should make it even a greater inducement for nations to submit their disputes to an international tribunal than the ordinary private losses involved would induce individuals to invoke the aid of the courts of law.

That if a league were formed compelling nations, before actually shedding blood in any justiciable cause, to submit the question to arbitration, and any nation should refuse, the scorn of mankind would be so strongly manifested and the moral force of the world would be so formidably asserted against it that no nation could survive its wicked disregard of international fair play.

Many of the league's advocates believe also that it is entirely practicable to create a world court (with rules written in advance by the powers creating it) with authority to decide all international questions and to enforce its decisions by ordering all the signatory nations to punish any offender by an economic boycott, thus making her at the same time a political outcast and a prisoner within her own borders, with all means of dealing or communicating with the outside world denied her, which, of course, would probably mean commercial ruin, industrial stagnation, and physical starvation.

Other league proponents go a step further and would equip this international or supernational body with an interallied army and navy, which it may order to attack any nation disputing its decrees.

The most distinct line of cleavage yet developed between those who differ regarding the practicability of such a league involves its right to use armed forces to render its decrees effective.

Advocates of the force theory declare such a joint military and naval force entirely practical, while the opponents irreverently designate it as a "foolish dream."

Let us dispassionately review some of the suggestions of the leaders in both groups. The last of President Wilson's fourteen points reads as follows:

"A general association of nations must be formed under specific covenants for the purpose of affording mutual guaranties of political independence and territorial integrity to great and small States alike."

The President, in elaborating upon this, declared:

"My conception of a league of nations is just this: That it shall operate as the moral force of men throughout the world, and that whenever or wherever wrong and aggression are planned or contemplated this searchlight of conscience will be turned upon them, and men everywhere will ask, 'What are the purposes that you hold in your heart against the fortunes of the world?' "

Dr. Nicholas Murray Butler says:

"Let these nations, assembled by their representatives at Versailles, declare themselves to be a league of nations organized for the precise purposes for which the war was fought, and with which their several peoples are entirely familiar, namely, the definition and protection of standards of international right and justice, the sanctity of international obligations, and the right of the small and less numerous peoples to be free from attack or domination by their larger and more powerful neighbors. This will be sufficient to begin with."

Mr. Talcot Williams says:

"The league is inevitable. It exists for war. Why not for peace? It has suffered from too much definition. It would do its chief work in preventing war by the use of military force to prevent hostilities by action without the declaration of war, avoiding disturbance to trade, to international intercourse, and to credits."

Senator John Sharp Williams:

"There are only two ways of keeping the peace of the world. One by an amphictyonic council of the civilized world which we are trying to secure; the other is by the domination by one great world power, such as the Prussian and the Germans attempted and failed."

Viscount Grey:

"The Versailles conference will be the vital beginning of such a league. All that is necessary is that it should not commit suicide but keep itself alive by recessing from time to time and maintaining a permanent organization. This is not all that is desirable but all that is essential. A beginning that has vitality is better than a more complete plan that has no life. One is a living thing, and the other a piece of furniture."

Lord Parmoor:

"I approve of the principle of a league of nations and the constitution of a tribunal whose order shall be enforcible by an adequate sanction."

Lord Curzon: "The French commission seems to have pointed out that it would be out of the question to set up an international police, a state above all other states whose aims should be to substitute law for force in the settlement of these national disputes. In this I think we shall all concur."

The plan of Baron de Constant and Leon Bourgeois agrees with the American suggestions generally and differs with the French commission.

Lord Parker: "It is a very serious matter to ask great nations to agree beforehand to submit disputes of whatever nature to the arbitrament of a tribunal consisting of some two dozen or three dozen States, many of whom may be interested in casting their votes on this side or that."

The absence of French quotations is best explained by the following letter from Robert E. Olds, one of the best-informed Americans in France:

"I assume you are following closely the career of that ancient and honorable idea of a league of nations. One gains the distinct impression that the French regard the notion as chimerical and visionary."

Our Official Attitude.

As compared with the report of the French commission, the American Government by the act of Congress of August 29, 1916, declared it to be "the policy of the United States to adjust and settle its international disputes through arbitration to the end that war may be honorably avoided, and the President is authorized and requested to invite at an appropriate time all the great Governments of the world to a conference which shall be charged with the duty of formulating a plan for a court of arbitration, etc., to appoint nine citizens of the United States as delegates, and to expend such portion of $200,000 as may be necessary to carry this act into effect."

Mr. Wilson signed this bill, but never acted upon the suggestion.

This act, you will observe, makes no reference to equipping the court with a joint army and navy to enforce its decree.

Perhaps the most thoughtful and elaborate of all expressions on the subject are those of Lord Bryce, in which he concludes:

"I think we may dismiss all these grandiose notions of what has been called a federation of the world and attempts to induce the great States to forego severeignty and to submit to some superior authority and to constitute an international army. All these schemes must belong to a very distant future, and I do not think we ought to contemplate any further limitations of sovereignty. It is not to be denied that the difficulties in the way are very great. I do not think anyone can appreciate how great these perplexities are unless he confines himself to a close and long-continued study of the subject and to the various plans that have been advanced."

Lord Bryce suggests the following concrete essentials of the league of nations, upon which its advocates are to accord:

1. The prevention of war, one of the world's supreme necessities.
2. War can be obviated only by arbitration.
3. Arbitration can not succeed without force behind it.
4. Compulsive force can be secured only by international operation.
5. Every member of such a league must agree to accept arbitration.
6. The league shall defend any of its members who may be attacked by any other State refusing to support arbitration.
7. The league will require:
   (a) A tribunal to arbitrate justiciable controversies;
   (b) A council of conciliation to inquire into and apply mediation to nonjusticiable controversies;
   (c) A conference to amend, regulate, and codify international laws; and
   (d) An executive authority to decide on the time and methods of compelling States to submit to arbitration.
8. Enforcement may be either by economic pressure or armed force, or both.

The points upon which they do not agree are as follows:

1. What principal shall control the admission of States to the league?
2. Shall members, great and small, have equal powers?
3. How shall the judges or arbitrators in the council of conciliation be chosen?
4. Shall the executive authority consist of persons representing the nations who are its members, or how otherwise?
5. Shall the council have power to act when it sees danger without being requested by a disputant State?
6. Shall the league have a standing army and navy?
7 Shall its decisions require a unanimous vote or merely a majority of the governments represented?
8. Shall the league have power merely to force nations to arbitrate their difference or shall it also have power to force them to abide by the arbitration decree?
9. How are military and naval armaments to be reduced?
10. Can members of the league conduct secret diplomacy?
11. Can members of the league have separate treaties among themselves?
12. May members of the league have different tariff or reciprocity agreements with each other?

Senator Lodge has suggested another serious question as to whether or not there shall be any race exclusion or discrimination.

To this formidable array of obstacles the thoughtful American is compelled to ask by what constitutional authority any department or officer of this Government can confer upon any international or supernational body, beyond the control of the United States, the right to enforce its decree against the United States to attack any other power, or even to attack the United States itself, in order to enforce the decree of such foreign independent body? Can the United States by any arrangement afford to place its great instrumentalities of power in the hands of any foreign body which it does not itself control with the authority upon the part of such foreign body to use American arms against nations with whom we have no direct disputes or grievance?

Can the power to declare war, which is vested in the American Congress alone, be delegated to an alien body in which we might possibly have a single representative? Would it be constitutional? Would it be prudent?

As a great many of the world's serious disturbances and injustices involve disputes between peoples and their own governments, is the league of nations to have any power to intervene between citizens and their own governments, between subject and sovereign, and thus control the internal affairs of other nations under the guise of averting civil war and preserving the world"s peace? If so, are the Army and Navy of the United States to be used for that purpose without affirmative action by our Government?

Will it Reduce Armaments?

But one of the most practical of all questions is whether the formation of the proposed league is to do away, to any extent, with armies and navies, and is the great tax burden of militarism to be lifted from the people who are today groaning under the load already imposed?

The most surprising answer to this is found in the proceedings of our own Congress within the past few months, when Secretary Daniels, before the Naval Committee, made the startling declaration that the present proposed expenditure of $600,000,000, as a consequence of which the United States in 1925 would have the greatest navy in the world, even outstripping England, was necessary in connection with the formation of the proposed league of nations.

Secretary Daniels amazed the committee when he said: "You can do nothing in the world which would so strengthen this country's position at the peace conference as to authorize this enlarged naval program." The following is also the New York Times' report of his testimony before the same committee:

"Secretary Daniels and the naval officials desire to have a navy which will be as large as that of any other country not only for our own purposes but for policing the world in case a league of nations to enforce peace is created at the Versailles conference."

Admiral Badger, before the same committee, declared navies must be the principal support of the league of nations, and the United States will be called upon to contribute a very large share of the international police force to render the league effective. The admiral was supporting the $600,000,000 program.

For these reasons it is well for those who are ardently urging a league on the theory of lightening the world's burdens to bear in mind that its creation is to be followed in our own case by the largest naval expenditure of any nation in the history of mankind.

In view of the foregoing list of problems to be solved and the obstacles to be surmounted by the men at Versailles, reasonable and thoughtful citizens of this Republic will understand why our former Secretary of State and present Senator, Mr. Knox, suggested by resolution that the immediate problems of the war should first be disposed of in order that the people of all nations might resume a more normal, placid, and impartial state of mind and in order, too, that when that judicial atmosphere is established the world might take up and consider the wider and more fundamental problems involved in the establishment of a league of nations to avert discord and perpetuate the world's peace.

In conclusion, let us ask, whatever may be the present and future motives and ambitions of other nations, have the people of the United States not established in a greater degree than any other their devotion to the spirit of fair play and their freedom from many of the local and petty prejudices and selfish aspirations that still linger about other nations? If this be true, why not continue to build up and intensify our people's love for those ideals, and the love and respect of other peoples for our country, and keep as far and free as possible from unnecessary foreign entanglements and alliances?

Why not keep in mind, too, that in spite of all their unselfishness and sacrifices for mankind, the Italians crimsoned the snows among the clouds with their blood primarily because of their love for Italy; that the British fell in millions before Hindenburg's armies primarily because of their love of England; that the Blue Devils wrote the most heroic stories of sacrifices of the war in their own blood at Verdun because of their love and devotion to France; and that every soldier of this Republic who died in the St. Mihiel salient and fell face downward in his own blood in the Argonne Forest died not only for mankind but above all because he loved the land of Washington and Lincoln and its hundred million free people—and thus it will ever continue to be, men will be willing to live and die for their country, their kinsmen, and their homes, but will the day ever dawn when their devotion to their country can be literally wiped out or transferred to some distant, independent conglomeration of nations of which they are only an incidental part?

Let us approach the solution of these problems as we would a sanctuary, and if ever God's holy light revealed to man his duty, let it reveal it now, when the peace of tomorrow depends so much upon the prudence of today. (Loud applause.)

Toastmaster Laughlin: I think I mentioned, my friends, that Mr. Burke was the other great orator of the city of Pittsburgh. You can imagine what the other must be like. They say, and I am forced to admit it, that he is considerably better. (Laughter).

The title assigned to the next speaker is "Little Grains of Sand," and I see the speaker is the director of the Bureau of Standards. I do not know just exactly what that bureau does, but I believe he, as the director, is the man who tells you how many quarts there are in a pint, or rather, how many pints there are in a quart, and how many bushels there are in a peck and how many feet there are in an inch. He is the man who standardizes weights and measures, and, by the way, Ladies, he will tell you how long to wear your dresses. If I had my way, I would have someone tell you to wear them for a couple of years and I would not care whether you wore them longer or shorter. Speaking about dresses, if the stenographer will lay down her pencil for a moment, I would like to make an apology. Ordinarily, I do not believe in apologies. I was kept busy all day trying a law suit and then had to go to the law school, where I happen to be a teacher, so I had my wife send in my dress clothes. I laid them out for her this morning, all except the coat, shirt, vest, trousers, collar and necktie. When I went to my office and found there my traveling bag I was careful to take my coat out and hang it on the rack. I went back about half past seven this evening and proceeded to array myself but, alas, I could not find my trousers. To make a long story short, they were not there. I told Mrs. Robb—her husband is Mr. Robb, the president of this organization—about my clothes and this is is what she said, and she cannot deny it, "It is lucky you are not a lady. She does not have to have so much on above the table, but she must have on something beneath the table." (Laughter.)

Doctor Stratton, by the way, is accurate as a standardization expert. For instance, he can tell you how many grains of sand there are in a box of sand. Now, if there is any lady or gentleman here who doubts it, let him bring in a box of sand; the Doctor will tell him how many grains there are in it. If you do not believe him, you can count them. (Laughter). Doctor Stratton is mightily efficient in his department. If he is not, I am not to blame, I did not put him there, but I know this, if he is a Democrat he is efficient. It gives me pleasure, Ladies and Gentlemen, to introduce Doctor W. S. Stratton, of Washington, D. C. (Applause).

LITTLE GRAINS OF SAND.

"Think naught a trifle, though it small appear."

DR. S. W. STRATTON, WASHINGTON, D. C.

Mr. Toastmaster, Ladies and Gentlemen:

Our toastmaster, like a great many other people, and like all lawyers, shows remarkable ignorance as to the meaning of the term "standard." There was a time, many years ago, when standards meant quarts and bushels, and yard sticks, but today it means temperatures, electricity, standard and quality of the clothes you wear, standards of paper, standards of the performance of machinery, standards of perfection of public utilities. The word, "standards," means things besides yard sticks and bushels and quart measures, but we find our friends, the lawyers, are not expected to know these things, they take up the facts as they are presented, and work them out to their own advantage. (Laughter.) There is no class of people that I ever met that tried to manipulate standards as lawyers do. Other people try to have fixed standards and adhere to them, but with the lawyer the standard is always stretched to fit the case he is in—in this case he is on my side.

When your secretary asked me to speak this evening, I told him that not being a brickmaker I knew nothing of the subject, and when I found this evening that he had assigned to me, "Grains of Sand," I supposed of course he meant the sand of which brick are made. I remember now he said something about little things, just as though the Bureau of Standards dealt with little things only. We deal with large things, some of the very largest things, but I am going to take him at his word, and tell you of some of the little things the Bureau of Standards does and illustrate how these little things lead to large ones.

Once upon a time in showing a man through the laboratory, showing him how we measure the millionth fraction of an inch. He said, "What is the practical use of measuring to a millionth of an inch?" Our explanation was that we must do it in order that we might determine means which will enable you to measure in your factory a whole inch, or even a great amount. I have on my table at home, a photograph about the size of this program, taken with the largest telescope in existence, upon one small spot in the sky; this photograph covers but a very small portion of the sky, and yet if you will look at it you will see it is covered with very fine grains of powder. It looks as though it were a blot upon which had been sprinkled flour. Each grain of that flour represents a solar system as great as our own. Our own universe on that chart would appear as but a grain of sand, and yet it is but a very small portion of the universe. Then we look the other way, and take a fine grain of sand; it is as complex in its structure, and as wonderful in its structure as this great universe, toward which we look and see but a small portion with the greatest telescope.

Now, it is with these small things, looking the other way, with which we are concerned, and it is these little things that tell us of the greater things beyond. These little things have to do with matters about us every day to a far greater extent than you suppose. Let us take a few great examples. Light from these thousands of stars takes many years to get here. Light travels at the rate of 185,000 miles per minute, several times around the earth per second. Yet these light waves have been harnessed, they tell us all we know of the distant stars, and these instruments studying these light waves which brought us the messages from the stars, their composition and all we know about them, were handled in the laboratory of the Bureau of Standards, as we handle yard sticks and quarts.

When the war broke out, one of the very largest and most important things was the standardization of munitions. The theoretical standard is a steel block. Some of them are built up to various heights, though it is necessary to get a five inch gauge. We built up five-inch blocks and built the gauge by them. We must know these blocks are right, and by means of the light wave we have tested them to one hundred thousandth of an inch, and that is one of the grains of sand with which we deal.

You will be interested to know that those who did this work of placing the light wave as the basis of the measurement of this standard gauge, the measurements upon which our munitions were based were the astronomers engaged in studying the light waves. There is another exceedingly important part of the work, and one which we thought would have no material application, and that is the value of certain processes of photography. In studying the composition of stars, it is necessary to study the structural lights. It is very difficult to take a photograph of a red light. The spectrum or plates are not sensitive to red. These astronomers provided and modified the photographs so they were sensitive to the red wave. When the aviators came to take the photographs of the country they found they were misty or foggy; the red waves being longer than the other the very light waves penetrated the mist in the fog, so these same astronomers took these same plates, and showed the men in France how to use this method in the taking of the aeroplane photographs.

Another illustration: It became necessary to examine the cause of certain deflections in the fall of shots from our largest naval guns—perfectly remarkable that a gun fifty feet long will shoot at a range of 30,000 yards, and our big guns which went over will shoot at a range of forty or fifty thousand yards, and yet that was too great. The dispersion was too great, and it became necessary to study the rays, the reason of this dispersion. To do this it was necessary to study accurately the time that elapsed between the explosion and the scattering which followed explosion, and what it did all that time. The results of the physicist was expressed in one thousandth of a second. Another of the grains of sand, Mr. Secretary.

There are many illustrations of this kind, showing the application of these small measurements. Another showing the application of the measurement of a small amount of time in its application in the machine gun of the aeroplane. You know the machine gun of an aeroplane in most machines must shoot straight over or through the propeller. It would not do to hit the propeller, it must fire when the propeller is out of the way. There were a number of devices invented for this, but it was necessary to have a better one; therefore it was necessary to employ a man who works in exceedingly small measures, and can measure time by the one thousandth of a second. This gun must fire within one thousandth of a second (the same grain of sand), but this was done successfully.

Dr. S. W. Stratton, Washington, D. C.

Another important and very interesting grain of sand is in the method of locating the enemy's guns. As you know, sound travels by waves, also, but these sound waves are in the air, and they travel at so many thousand feet or so per second. The sound waves travel out in a circle. If we have a number of stations here, and a series of sound clocks, and we can measure the time the sound reaches all these stations, and can compute the difference and construct these around the circular wave, as it were, we can measure the location of the enemy's gun. These pieces of apparatus which were used were measured to the thousandth of a second right along, and they determined very accurately the position of the distant guns.

It is necessary in studying these distant stars to measure the heat that is reflected from them, and one of the experts skilled in the measurement of small quantities of heat developed an instrument so delicate that it would measure the heat of a candle fifty miles away, provided there was nothing between. The instrument detected the heat from the smoke stack of a distant vessel, and became the means of ascertaining the distance of a vessel, so far away it could not be seen.

Another instance of these grains of sand. It was necessary to find out how the liberty motor behaved at different temperatures. It was necessary to test them frequently; hence a vacuum chamber was built, a large room in which we could place the engine and all its accessories, and the air exhausted and the pressure determined, and with these conditions the engine and all its accessories could be accurately tested, and you would be interested in the results secured there. These tests were used in the designing of scientific apparatus, and especially in the power plants. And here in this great engineering problem all the delicate problems of heat and pressure were made use of, as they would be in the laboratory.

Then again, in the examination of all the materials which enter into, not only these laboratory tests, but in the industrial world as well, it is necessary to examine the structure of the materials that go into the structural and domestic and industrial lines. The most expert physicists and chemists are concerned in these small things, because it is out of the small things we construct afterward the large things. I could entertain you for a long time in regard to the work of the scientists, not only with the use of these materials for war purposes, but the standardization of all your materials. That is one of the good things that have come out of this war. We were forced to standardize a great many things. We were forced to do things better and more quickly, to find substitutes for things, and many of these things have come to stay. There are many illustrations I might give of things which were improved, and for which we were forced to find substitutes, and new industries have sprung up, new industries which we must foster and take care of in the future. I know of no subject or any material among the many which we have studied that is more fascinating or presents more difficult problems than clay. No other substance has as many products. I am astonished to find many times the great variety of the clay products. You would be surprised at the great number of applications we have had in this line of work during the war. The scientist simply did the things he does every day in the industry. He did them with a wholly different application in view. Now he returns to the former order with renewed vigor, with increased experience, and the next few years will show a far greater interest in the introduction of the materials with which you deal than ever before. One of your members, a member of the Bureau of Standards, Dr. Bleininger, who is with you tonight, has done more perhaps with these products, and especially with regard to their application during the war. You will remember that at the outbreak of the war, we were seriously in need of optical glasses. It was one of these things we had been importing from time to time—like the dye stuffs, because it was easier and cheaper, we moved along the path of least resistance. The very first problem that confronted us was a question of refractories. This was overcome due to the work of Dr. Bleininger working in the laboratory who developed this work, and here again he had been working in this line of work long before the war. Those of you familiar with the refractories know what that meant during the war; it was simply torn to pieces. We had to make crucibles for the melting of munitions, etc., for the manufacture of commercial glass, for the manufacture of opttical glass and all kinds of glass. I could not give you a better illustration of the same things that were developed and worked out for the industries that were used during the war, and will now be pushed with renewed vigor in regard to the industry.

Now, in this reconstruction of the world which we have heard tonight, one of the greatest factors is going to be the reconstruction of many of the material things and our opportunities in regard to them. We have reached an age of research. One of the splendid things about an organization of this kind is you can join hands in finding out about these grains of sand. This Association perhaps more than any other has joined hands in the working out of many things. In fact, this is one thing which to my mind places American manufacturers far above those of other countries. They learned long ago the lesson of joining hands in working out these things. Unfortunately, some of our industries have joined hands only for the working out of the financial side, the governing of the finances, the placing of operations of factories upon an economical basis. That is just a small step compared to that step which you have taken that leads to the working out of the problems, that lead to the working out of the troubles which lead to the betterment of your product.

I want to leave one word with you, and that is to join hands still further in the working out of these important problems. Give to Dr. Bleininger and that department your cordial support, and if the government don't get behind him as it should, get behind him with all the money you can. These grains of sand will prove golden nuggets if you will but look for them. (Applause.)

Toastmaster Laughlin: As I listened to Doctor Stratton, this thought came to me, that perhaps it is true that we Americans went into the war unprepared. If by preparedness is meant to have guns built to destroy soldiers trained to pillage and kill, aeroplanes built to bomb hospitals, navies constructed to sink neutral vesesls, we were unprepared, and I thank God we were so. But, if by preparedness is meant to have trained a citizenry willing and able to fight when the cause arose and to have developed men like Doctor Stratton and Doctor Bleininger, with other scientists, who could turn their talents from peaceful pursuits to the perfection of such instrumentalities as Doctor Stratton has described, then we were prepared. We have heard much about the boasted efficiency of Germany. I am rather inclined to think that the efficiency of Germany was largely, if I may use the slang expression, in their mouths. When the showdown came, they were mighty inefficient. Once the Americans got over there, the war was over. Like Mr. Burke, the first thing you know, I will be making a speech. Now that the war is over and we have something worse perhaps to face, I would like to have Doctor Stratton say, for the benefit of some of the brickmakers who are "wet," if there are any, how many quarts it will be necessary to buy to last from July until you die. (Laughter.) Inasmuch as Doctor Stratton may not be able to give us this information, perhaps Rev. Doctor Cartwright can, having had—less experience. You thought I was going to say "more experience." I heard a soldier say the other day that the average soldier in France goes around saying, "Where in Hell is the Sky Pilot?" I thought at first he might have meant the aeroplane man, but I am told he refers to the Chaplain.

I do not know whether Doctor Cartwright is capable of discussing the subject, "Men and Women of Clay," but I do know that it is easier to preach than to practice and Doctor Cartwright, being a preacher, will, no doubt, expound his subject properly. I did not, until this evening, have the honor of his acquaintance personally, but I have known him by reputation for some time to be one of Pittsburgh's real men in every sense of the word. He is the pastor of the Mary Brown Methodist Church of Pittsburgh, honored and revered not only by his parishioners but by all the good people of Pittsburgh, and this means all of them, because there are no Pittsburgher's who are not good. Ladies and Gentlemen—Doctor Cartwright. (Applause.)

MEN AND WOMEN OF CLAY.

"He's a brick isn't he?" .

DR. C. L. E. CARTWRIGHT, PITTSBURGH.

Mr. Toastmaster, Ladies and Gentlemen of the National Brick Manufacturers' Association. I am wondering if Dr. Stratton can tell us by what standard such a toastmaster as this has been selected. There is not much as to lineal measurements, but I don't know about measuring his wit. I can well understand, why he should have raised a question he did, he was hopeful that Dr. Stratton was going to tell by some sort of periscope, or microscope, or telescope or some other scope, how many quarts it would take to run him until the end of his days. Because you remember he announced when the first speaker was introduced that they were prominent members of the Allegheny bar. We could easily believe they were members, especially the toastmaster, from the way he has performed, of most every bar in Allegheny County. (Laughter.)

Well, it is a real joy to be here. I am sorry to feel constrained to make any apologies for being in such company, as I am in here—just right here on the platform I mean, for I belong to the clay crowd, the common people, was born that way and have lived that way and expect to die that way and go back to clay where I came from. But I see on the progressive program (and I can see as I studied you a little yesterday at the opening session) that you felt it was necessary to get a little bit of moral character to the program, so you took a preacher and put him on, but now it is real joy to be here, laying the joke aside, and it looks to me as though we were going to stay awhile. There was once a company of Irishmen who formed a cemetery association. They bought a plot of ground and laid it out and put a fence around it, a gate in the fence, and an arch over the gate. Then they met to congratulate themselves upon the enterprise and spent a whole evening telling themselves what good fellows they were, and so on and so on and as the meeting was about to adjourn, the president said, "Now gentlemen, we have the ground and around the ground a fence, and in the fence a gate and over the gate an arch, but there is not one thing to tell the traveling public what the place is for. Now we are going to have another meeting in a week, and in the meantime I want every man to put his wits together and find out something suitable to put in the arch over the gate." So a week passed by and they came together again, and the president said, "Now gentlemen, you have had a week to think this over and I want your suggestions as to what to put in that arch." One man spoke up and said, "Mr. President and gentlemen; I've been thinking about this matter for a week and I can't think of anything else to put over that gate but 'Welcome.' and I thought to myself that would be a great way to be meeting the dead." The second man said, "I've been thinking over this problem and I have come to the conclusion, that this would be a good thing, 'Earth to earth and ashes to ashes,' and I thought what was the use of confronting them with that, when they know that they will soon be that anyway." The third man said, "I think I have the key to the vexing problem, I would suggest these words as fitting to go into the arch, 'We are here to stay.'" (Laughter.) Now this program looks a little like we were here to stay.

When I heard from Mr. Randall in regard to speaking on this program and I saw what business you were in, I wondered what we were going to talk about and I thought, what on earth do I know about brick and I don't dare to mention that chap and his Israelites. (Laughter.) I am a preacher and the son of a Methodist preacher. The Lord kept him humble, and the people kept him poor and I inherited both these qualities. It sent a chill down my spinal region to see Brother Laughlin come through with that five, and it took the very soul out of my speech, for I had intended to talk at some length on the brick fields of—well enough said.

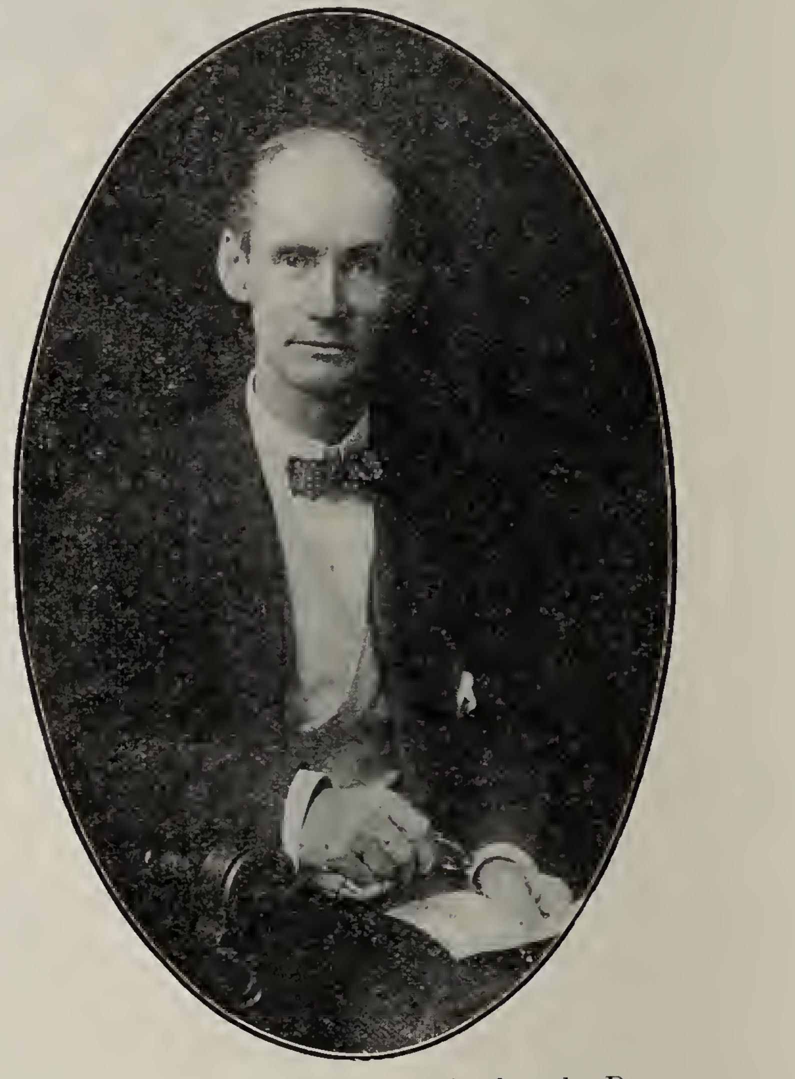
Toastmaster Laughlin: I'll give you the five . (Laughter.)

Dr. Cartwright: If you weren't a lawyer, I might believe you. Then, when I looked around over my desk to try to see what sort of a speech I would perpetrate, I saw lying there, on my baby picture—I don't mean the picture of my baby, I mean a picture of myself when I was a baby, one of those old daguerreotypes—yet

I am not nearly as old as a daguerreotype would indicate, my baby picture when I was only two years old, honestly it is the loveliest thing you ever saw, I just loved that baby, as though it were not myself, and I can't understand myself now after looking at that baby picture. I can't make anybody believe that I ever looked like that, why even my wife don't believe it—she says it don't look like me. We have six children and five grandchildren, and they wouldn't any of them believe that picture is me, I can't help that. A woman said to me one time as I was about to leave a congregation where I had been stationed for some time. She had been very good to me and my wife, and my wife said, be sure you tell Mrs. So and So, good bye. So I ran up to her house and said, "I have come to say good bye." She was a very beautiful, modest widow—very lovely, and she said "I certainly am sorry to see you go. I certainly can never forget you. There are things you have said and lots of thoughts you have started up in my mind that have become a part of my life, and she talked so beautifully about it. I was getting very panicky and I said, "That's all right, I guess I will have to say 'good bye.'" And she said, "Now Doctor, don't hurry, I would like to talk to you about a personal matter, if I thought you would not take offense." I said, "Oh no, I won't take offense at all." She said, "You know I am your friend, there is one thing I want to understand, will you not be offended?" "No, no," I said, "come on with your question." So she said, "I want to know—Oh, I am afraid you will be offended." "No, no, be in a hurry and tell me." "Well, I want to know Dr. Cartwright, why you make such ugly faces when you preach." I said, "My dear lady, I didn't make my face in the first place. When it comes to manipulating, I unconsciously work it, and I can't tell what it does look like, when I do work it." And she said, "Your preaching would have so much better effect if you didn't work it so." "Well," I said, "I'll explain it to you, I expect I am desperately homely at times, but when a man has to stand up before this congregation every Sunday and look down into such faces as I have had to see for six years, he gets to be metamorphosed, that is all." She said, "I thought perhaps you might change it." "Nothing doing," I said. To go back to my desk—on my baby picture was lying this little piece of brick. Friend Randall, I want to declare, and swear to it, that this is a piece of a brick. You can't imagine where that brick comes from. It starts up a train of memory when I see that piece of brick on my desk. I will tell you, I was born, I don't know whether it was a brick plant or a brick yard or where, but it was up on the Allegheny River, at a place called Brady's Bend. I went back to see the place where I was born and an old man said he remembered the day that I was born and he took me over and showed me the place where the house stood and I could only see a little furrow where the house stood. I picked up that piece of brick and I have kept it as locating the place where I was born. It is lying on the table to remind me that I was born. I haven't the slightest recollection of it at all, but that marks the place where I was born, and I am mighty glad that it happened. When I first started out I had a very good start for my talk, but being prohibited from referring to what would naturally be my stock in trade it seems, therefore, that I would have some difficulty to talk to you. That is the reason why I am saying a lot of things I don't mean, and since you have prohibited my bringing out one of my old manuscripts I don't intend to say a single sensible thing, unless by accident, from now on until 12 o'clock.

I understand that you are engaged in one of the greatest businesses in the world, and when I go back to the beginning—I go back a little farther than Mr. Laughlin did—I got back to that second chapter of Genesis—I am bound to stick to my occupation. It is said—of course, I don't believe it—(this is for the benefit of the ladies) "God made Heaven and Earth." I do believe that, and then He rested. God made man and then He and man rested, and then he made woman and neither God nor man has had any rest since. (Laughter.) I don't believe that. That isn't what I started out to say at all. I had forgotten all about that until this evening. Some of you women are looking mighty sleepy and that is the worst thing you can do for I am not half through. I have got to talk about brick and clay and I don't know of any subject on that program more appropriate in view of the fact that this is a body of technical people dealing with brick. I feel I am right when I say right in the beginning a few facts, not that I know anything about this sort of business, not exactly making brick, except that old proverb of the idea of enduring character and quality of brick, we have said of this man and that man, "He's a brick, isn't he?" You speak that of a man who has sterling qualities—you never say that of a shilly shally man, or a man without backbone, or sand. You say it of a man of good building quality. You know back in the beginning, God made man, or it is said He made his body out of the dust of the ground—there is the beginning of your business. He made man out of the dust of the ground. Bethnal Green is a suburb of London. It has a great museum. On a shelf in the food product department, you will see the greatest answer to the question, "What is man?" to be found any where in the world. The body of a man weighing 140 pounds, five feet, eight inches in height, thirty years old, resolved into its original and component elements, so many pounds of potassium, so many pounds of carbon, and so many pounds of something else, all sealed up in sixteen different jars, all labeled, and the great marvelous feature is when you weigh the contents of the jars, they weigh just as much as the man did when he stood on his feet. That is a marvelous thing. If you look at the component parts or elements of that man's body, and then see how much you are related to a brick, carbon, water, potassium, iron, and so on, and so on. "He's a brick, isn't he?" They don't make HER that way at all. He took a rib from man and made woman. That is the reason she is so superior to man, because she was not made of mud. She is a byproduct. One of the speakers referred to woman being alongside of man. I thought it was because she had sprung from his side. As I look over this audience, and as I looked at the audience yesterday and saw the ladies there who had denied themselves the privilege of going to the theatre that they might come and see the officers elected, there is not a bit of trouble at all in deciding that you were not made as your husbands were. I just wonder, as I look over this audience, when I consider the industry you represent, and consider where you come from, from all parts of the United States, as I look at these beautiful women—they are unusually beautiful—I believe in telling the truth, and telling it fearlessly—I wonder if these men along with you are your husbands (Laughter) and if they are, did you select them yourselves?

Well, now it is geting late, and I know there are more speakers, and I don't want to take their time, and I do want to say one or two sane things. I have had a great identification in this community and in Western Pennsylvania, especially in the campaigning for all of these war interests, and I have never been so stirred up in all my life as I am now. I want to speak real sensibly to you for two or three minutes on this. I have never felt how wonderful it is to live as I feel it now. I have never in all my life, it seems to me, even to a degree of the smallest fractional part realized all that I realize tonight of how wonderful it is to be an American citizen. Why, it means more tonight than citizenship ever meant to a living being on the face of the earth, in all the history of time. And I thank God tonight that I am a citizen of the land of George Washington and Abraham Lincoln and Theodore Roosevelt (Applause) and Woodrow Wilson. Why I would rather be the humblest duly accredited American citizen tonight, "duly accredited," by which I mean I have invested in war savings stamps, I have bought Liberty bonds, by which I mean I will buy more if it is necessary until all this indebtedness has been lifted from the nation. I say the humblest duly accredited American citizen, though it be a woman, and thank God the women are coming, they are coming fast, they will soon be here—I would rather tonight, and so would any of you sitting here tonight, be the humblest duly accredited American citizen than to be king, kaiser or czar of any land on the face of the earth.



Dr. C. L. E. Cartwright, Pittsburgh, Pa.

Why, thank God, I prophesied twenty-five years ago some things that have come true. I feel mighty proud of myself when I think of it. Yes, I do. I said last spring when we made that wonderful trip through Western Pennsylvania with Sousa's Band (and some of the men on the tour said, "Cartwright, say that everywhere we go"). I said, "England is thankful for America, France is thankful for America, Belgium is thankful for America, Italy is thankful for America, poor mind racked Russia is thankful for America, and the day will come when Germany will thank God for the United States of America, and the day is mighty near here right now." I certainly mean it, and if I had my way I would put a little pyrotechnics in your patriotism. Get out of my way, I haven't time to wait for your consecration. Let me tell you a story about the announcement of the armistice. When the premature announcement was made November 7, there was a banquet of publishers being held in New York City, and that news was brought to that banquet, and the presiding officer wanted some one to fittingly express the emotion which was taking place in the hearts of the men in that room, and he called on Henry Holt, seventy-eight years young. He took a glass in his hand and said, "Here's to the beginning of the modern world." Could anything more expressive of the dawn of peace be said than that? "To the beginning of the modern world." And we are in the modern world. Here's another thing I said during my talks, "You can just judge for yourselves how true it is, and the boys said, 'Keep on saying that.'" For forty-five years it was well understood that they were teaching in Germany that all the United States dreamed about was money—well, we had something to dream about. We got it.

The German child of forty-five years ago was taught that, and he was taught that the United States had express intentions upon Germany, and on that basis he taught his people that all we wanted was to have a portion of Germany, or to control Germany. What would we want with Germany? Why we could put Germany, as it is now in the heart of Europe, put it into the heart of Texas. We would not want to do it, however, without putting someone down there to watch her. Carry this out, after you had put Germany in the heart of Texas, you could put Pennsylvania, New Jersey, Delaware and Rhode Island, and then have one hundred and forty-eight square miles of Texas left. What do you think of that? Did I say Rhode Island—the smallest state in the Union! I told hundreds of thousands of people on that triumphal tour that "when we are done with Germany we can put Germany in Rhode Island." And then I went a little further and told them that by the time the war was over, all that remained of the real Germany could be put in one of our townships and have plenty of room left. When we listen to such truths as we have heard tonight from Mr. Burke, and then we we think of that lowest, most despised viper of humanity (once called kaiser), that executioner of children, that murderer of women, that outcast from heaven, and not wanted in hell. (I got that out of my system, I feel better.) We don't dare go into this with too much venom. We are a Christian nation, thank God, and we are more Christian than sometimes we preachers think we are. We are not arrayed, the Methodists against the Presbyterians, and the Baptists. I spoke for a Red Cross affair not long ago in the western part of the state. One of the largest Red Cross affairs I have seen. On the platform with me (I was the speaker of the occasion) there were behind me two Catholic representatives, a Jewish rabbi, and two or three other preachers, and the two Catholic priests came up when I got through, and laid hands on me, and no one else could get near me until the platform was emptied, and one father was so enthusiastic, he said, "I want you to promise me that if you ever get in this town, you will come and spend the night with me." The age has passed, thank God, when men misjudge one another as to their real character and their religious convictions by the church to which they belong.

Old Sam lived on the edge of my father's farm, he had a little country place about twenty miles out here. Sam was a Baptist, that is, he said he was. Sam was a lazy old fellow that let his wife make the living over the wash tub. He was full of theology and one of the most eloquent expectorators of tobacco juice I ever saw. I was passing his cabin going to teach a country school, and Sam hailed me, "Oh, Charlie," and then he would spit a mile. "Oh, Charlie, you are all right, but you ain't started right," and then he would spit some more. "How should I start?" "You have never been baptized." I said something more forceful than elegant. "My mother told me I was, and I take her word for that, as I would about my birth, and I had to be there for both." He said, "No, you see you have to go down in the water." I said, "Do you mean to tell me that if I don't go down into the water that I will go to hell?" Sam said, "It isn't me that is making the law of Almighty God." "All right, you find where He says that in the Bible before I get back or I'll stone your old shack." But that is all right, let it go at that. Shortly after that our spring house was robbed of butter and eggs and milk. My father was an Englishman, a thoroughbred from the crown of his head to the soles of his feet; he weighed 225 pounds dressed, and when he said "Come," we came, and when he said "Go," we went. My father took us boys down into the spring house, and he said, "Somebody has been down here who knows the way." Sam had been suspicioned of doing a good deal of that kind of work, so father said, "Look at this heel track; the fellow wore a pair of shoes with a half tup on one of the heels, I want you to look out for old Sam's shoes." So we kept looking and by and by we found the shoes on Sam's porch, and he was the man who had been down to our spring house, and I told my father, and he said, "All right, let him go this time." My father was a preacher. Now do you see what Sam was trying to do, he was trying to send me to hell because I would not go under the water, and he was going to heaven through our spring house.

Thank God for the democracy that has come. I am so glad I can stand before you men, and you women are going to vote, too, and I am for you every time, whether my wife is along or not. The greatest discovery of the nineteenth century was woman, she is getting the ballot in the twentieth. No use making these discoveries unless you apply them. I cannot consider any man, whether he is a butcher, a baker, or a candlestick maker—I cannot consider any man a desirable citizen unless he will support with his power the President in power. It seems to me he has been raised up by Almighty God, even though the Democrats did elect him. I am like the man from Chicago who had a matter he wanted Lincoln to act on. He said, "We came all the way from Chicago to Washington to bring this matter before you. This matter came from God. We have been praying about it, and we think it is a message from God to hurry you up about this Emancipation Proclamation." Mr. Lincoln said, "Do you think He would send that message through Chicago?" I don't care if the Democrats did elect Woodrow Wilson, I believe he was raised up by Almighty God, and I am for him and I am a red hot Republican.

I am talking too long, but the reason is I got so interested in Dr. Stratton's speech I forgot to go over my own. The danger that is confronting every last man and woman of you is that the armistice having been signed for an everlasting peace, you will go back to your old lives. You can never be the same you were before the war. I don't mean to deliver a lecture to you.

> The crest and crowning of all good,
> Life's final star is brotherhood.
> For it will bring again to earth,
> Her long lost poesy and mirth
> Will send new light to every face
> A kingly power upon the race.
> And till it comes we men are slaves
> And travel downward to the dust of graves.
> Come, clear the way there, clear the way!
> Blind creeds and kings have had their day.
> Break the dead branches from the path;
> Our hope is in the aftermath,
> Our hope is in heroic men star-led
> To build the world again.
> To this event the ages ran
> Make way for brotherhood, make way for man.

(Applause.)

Toastmaster Laughlin: You might have thought, now that you have heard Doctor Cartwright, that he is the other great orator I referred to. He has maligned me and, as the best evidence of my status here, I am going to do something he was afraid to do (takes a drink of water). Another thing I would like to say, being a member of the legal profession, I have read considerably of the Bible and have often read the Sermon on the Mount. It is there written "Blessed are the Peacemakers." Note, it is the peacemakers, not preachers, nor doctors, nor brickmakers. Brickmakers, at least their product, make trouble. Who makes the peace? Being a lawyer and best qualified, I will answer that question myself—the lawyers.—Do you ask proof? I admit it. You stir up strife. We invariably mix in and when the matter is settled up there is little, if anything, left to quarrel over. (Laughter). I want to thank Dr. Cartwright for giving me back my five spot. Much as I have confidence in preachers, I never expected to get that V back because I was afraid that he, like so many others, was shy that much from last month's salary.

The next speaker I do not have the honor to know at all, but I know this, he comes from Toronto, Canada. I would like to have time to say what I think about Canada. If I could not be an American, I would like to be a Canadian, because I think that country is a very good runner-up at least. When it comes down to scrapping, either we, by reason of the fact that we live next to them, have become excellent scrappers or they, by reason of the fact that they live next to us, have become excellent scrappers. Mr. Price is Assistant Building Commissioner of the City of Toronto. I know little about building, and perhaps less about Toronto, but I wish we had in the city of Pittsburgh some of Toronto's building laws and their methods of improving streets and outlying territory. If Mr. Price is in part responsible for these efficient laws and methods, and I have no doubt but that he is, we are indeed honored in having him with us tonight—Mr. Frederick W. Price, of Toronto, Canada. (Applause).

BRICK MANUFACTURERS OF AMERICA.

"Life's final star is Brotherhood."

G. F. W. PRICE, TORONTO, ONT., CANADA.

Mr. Toastmaster, Ladies and Gentlemen:

I am simply filling in for my chief, Mr. Pearse, who was unable to be present with you, and I regret that I did not know sooner that I was to be so honored so that I could have come prepared to respond properly to this toast. I do not need to tell you that I am not a speaker because you will find that out for yourself. Dr. Cartwright, in one of his stories, told us about a graveyard being laid out by some countrymen of mine having an iron fence around it and a gate with an arch over same on which was proposed putting the word "Welcome." There is a place in Canada, the town of Cobourg, where a great many wealthy Pittsburgh people have their summer homes and right near this town there is a graveyard with an iron fence around same and a gate with an arch over on which is inscribed the word "Welcome." In touring down that way, I have often wondered what the word meant and found on inquiry that the little hamlet nearby is called Welcome, hence the name.

We have heard quite a lot about civilization both tonight and many times lately. Civilization is something that we have been working for, legislating for, and fighting for, for many years. There is an old saying that "Civilization and booze go hand in hand." I am holding no brief for booze tonight, but content myself with the quotation of a countryman of mine who very aptly put it in these words, "We believe in putting it down in one way or another." But whether that is true or not, there is one thing we know if we believe history, that goes hand in hand with civilization and that is the manufacture of brick. From the earliest time we have any record or knowledge of (Mr. Clippert, I will not mention that time) that is starting with the Babylonians who were a civilized people and in fact I may say a cultured people, spelled with a "C." They made a very good brick about 6,000 years ago. And so on through history in just the same ratio as civilization attained so did the manufacture of brick. From Babylon we trace civilization and brickmaking through Persia, Northern India and into China. The Chinese claim that they were the first to manufacture brick but historians do not give them this credit. Chinese did make very good brick about 2,000 years after the Babylonians. From here we trace the manufacture of brick to the Nile where the children of Israel, then in bondage, made brick for their masters, then we trace civilization and brickmaking through Greece and Rome. The Romans spent a great deal of time experimenting with clay and the new methods of burning their brick and about the beginning of the Christian era had become very proficient in the art. About this time they introduced their civilization and brickmaking into Britain and some of their product is still to be seen. After the Romans left Britain we find a rapid decline in both civilization and brickmaking and it was not until the thirteenth century that the Britons began to make this product again. In the fifteenth century there was a marked improvement both in their civilization and their brickmaking and in the sixteenth century, under Henry VIII, who fostered the trade, a very good brick was made, many of which are still in existence after being used over and over again. Henry VIII developed into a very good brickmaker, and I do not know whether all good brickmakers are like him or not as he was very fond of the ladies also, but I leave this to the ladies here present to decide. (Laughter.) In the seventeenth century brick became the standard building commodity in Britain and has remained so to the present day and I can see no reason whatever to make any change. In 1625 there was a law passed in Britain standardizing the size of brick, that is 9x4½x3. That is a larger brick than we use today in this country, but I see by recent papers that the British Minister of Munitions has adopted that very same size as the standard for the current year. I do not know why they make a larger brick than we do but they have not seen fit to change it. The point which I have been feebly endeavoring to make is that there is nothing closer to civilization than the occupation in which you gentlemen are engaged.

Civilization, I am optimistic in this, after all our fighting and struggling for it, it seems we are very close to our goal and it is up to the brick manufacturers to keep step. I am also very optimistic along this line and I think that you men of the N. B. M. A. are the men who could do it by what I have seen today.

This is the first time I have had the pleasure of meeting with you. Our Association has always met with another body and I can only say that I am very glad to be here as it has been very profitable to me. It is now getting late and I will not detain you longer as there is still another speaker. (Applause.)

Toastmaster Laughlin: The next speaker, Ladies and Gentlemen, is a representative of the Bureau of Labor in the City of Washington. It was my pleasure to spend a portion of last summer in the service section of the United States Shipping Board on a Production Propoganda and I therefore had an opportunity to go among the working men of this country. Seeing them work, I thanked God I was an American. When I went through the coke plants and the mines, the steel mills of this district and other districts, and saw our working men doing their part with the same vigor as our soldiers, again I say, I thank God I am an American and the son of an American working man. The next speaker is a professor of Oberlin College. The college is in Oberlin, which is in the State of Ohio which, by the way, borders the State of Pennsylvania. I am only giving this bit of geographical information for the reason that we Pennsylvanians are sometimes taught to believe that the whole universe radiates out from here, but when we see so many good men and women from various parts of the United States coming to Pittsburgh as we see them tonight, meeting with them and finding them much like ourselves, we are forced to admit that we are not the center of the universe but we are a part of the center of the universe, which embraces the whole of the United States and Canada as well. I have the honor to introduce to you Doctor Vander Pyl (Applause).

WHEN OUR DREAMS COME TRUE.

NICHOLAS VANDER PYL, OBERLIN, OHIO.

"I slept and dreamed that life was beauty,
I woke and found that life was duty."

Mr. Toastmaster, Ladies and Gentlemen:

I am almost moved to suggest that instead of speaking, we sing together at this late hour, "Still, still with thee when purple morning breaketh." I feel naturally some embarrassment in following the speakers who have gone before. I am reminded of the man who came home late a little the worse for wear. As he was entering the door, just as quietly as he could, the voice of his spouse called from an upper story, "John, is that you?" "Yes, Mary," he said, "it is me." "What time is it, John?" "Twelve o'clock," he answered. Just then the cuckoo clock in the hall struck three. Speaking of the incident to some of his friends afterward, one of them asked, "What did you do?" He replied, "I had to cuckoo nine times." It is hard to cuckoo in imitation of these fine addresses that have been given. The Methodist preacher has been really witty. He has a right to be. He has to be serious twice every Sunday, and this is the only chance he has to be really funny and witty. He has certainly been successful. I can readily understand why Dr. Cartwright has the place in Pittsburgh and all about Pittsburgh that he has, in view of what we have heard tonight.

The department I represent has a harder task than Dr. Stratton's. It was marvelous what he told us of the work of the Bureau of Standards, and I can readily understand his impatience with the Department of Labor, as he expressed it to me this morning, because we do not come to definite results. The Bureau of Standards is dealing with inert, lifeless materials. He can mould it, fix it by a certain standard, or to certain measures; and there it stays. But human material has a way of kicking over all standards.

You know the story of the little German boy and his teacher. The teacher said, "Hans, here are five glasses of beer. Your father drinks one, your mother drinks one, and you drink one. How many are left?" "One," said Hans. "Why, Hans, you don't know your arithmetic," said the teacher. And Hans said, "Teacher, you don't know my father." So "father" has a faculty of upsetting even the fine plans of the Department of Labor. This human problem is the problem of the Labor Department.

When I was assigned to speak to this convention by the Director of Information, he wrote that he did not dare send anybody else, lest he get a brick beside the head. I spoke this morning before the convention, and the brick was not forthcoming, and here I am again, and whether I get the brick before I finish is yet an open question.

When Dr. Cartwright was showing that brick as a memento of his birthplace, I was reminded of a brick story. It appears that an Irishman by the name of McCarty had a very nice home, and on the parlor table lay various bits of bric-a-brac. A friend went to see him one day, and noted lying on the table a brick. Around the brick was a wreath. He wondered about it, and after the business was finished, he said, "Mr. McCarty, what is that brick there for?" McCarty said, "Do you see this dent in the side of my head? That brick did it." "Well," said the friend, "what about the wreath?" "That wreath," said McCarty, 'is from the coffin of the man who threw the brick." I do not know whether I should use the brick fired at me as a memento or not.

Dr. Nicholas Vander Pyl, Oberlin, Ohio.

But to be serious, as this Methodist brother told us he was going to be serious and was not. I have been asked to say something about dreams, and I do want to be serious because we are facing in this period of reconstruction what seems to be one of the most serious situations that this nation has ever faced. We have fought a wonderful, glorious and triumphant war, and we acquitted ourselves with great credit. Those of us who have sent boys over to the other side—and one of mine is coming home pretty soon, somewhat battered, from Chateau Thierry and the Argonne forest—those of us who have sent boys over there and have made some slight contributions ourselves on this side, will always take pride in what we and those of our blood have accomplished. And yet, ladies and gentlemen, the work is not yet done. It has been said a number of times this evening, there are greater problems facing this nation now than during the war. We could unite all the people for winning the war. Unfortunately, we cannot unite all the people in this great program of a reconstruction era.

It warmed my heart to hear Dr. Cartwright come out so strongly in favor of our President. I am not a Democrat myself, but God forbid that I should ever be so narrowly partisan that I cannot see the greatness of a man while he is living. I hemember how Abraham Lincoln in the dark days of our Civil War stood alone. Even good men stood apart from him; and on the day he died some of the best men of this nation were his enemies. Today he is the greatest American—the great American myth. God forbid that Woodrow Wilson should be compelled to wait, as Abraham Lincoln was compelled to wait, until after death for the praise of the people he has tried to serve with such fine mental power, and such fine idealism. I am not speaking as a Democrat or as a Republican. I am speaking as one who loves his country, and loves a good man when he tries to do his duty.

This war has brought about some wonderful things. Today we have a nation of all peoples and all conditions, but united; a nation which, when a crisis comes, is ready to hurl itself against a common foe. I am sure we are going to have a great deal more confidence in human nature after this, and a great deal more confidence in democracy after this. I have been amused at times as

I have gone about the country. Said a business man, "This matter of democracy is all right, but how far are you going to carry it?" I said, "To the utmost limit." Democracy may have muddled; our nation may have muddled. Some one has said that autocracy is like a stout merchantman sailing the sea. She weathers wind and storm, and usually lands cargo and passengers. But sometime in her course she strikes a rock, and down she goes. Democracy is like a raft; your feet are always in the water, but you never sink. We muddle along, but we muddle along to success. It is the people's task, and it gets the people's endeavor. You know the story Mr. Dooley has told in comparing the English phlegmatic character and the American energetic or impulsive character. He says, when an American finds a mosquito in the house, he gets after it slam bang. He steps on the baby, he tips over the furniture, but he gets the mosquito. The Englishman, when he finds a mosquito in the house, makes a few ineffectual slaps and when he finds he can't get it, he accepts the situation, calls his house "Mosquito Lodge," and imagines that the mosquito is singing "God save the king."

That is the way we do in America. We are muddling along, but we are solving our problems. Jane Addams was making an address in Boston at one time and was asked by a society worker, "Miss Addams, down in the district here we have some Italians, and we wish you would tell us just how to reach these Italians." I shall never forget her reply. She said, "If you go down among these people and think you are superior to them, if you go down among them with patronizing airs, feeling you can do everything for them and they can do nothing for you, you had better stay away. But if you recognize these people are flesh and blood like yourselves, that they have ambitions for their children and love them, that they are warmed by the same summer and cooled by the same winter, and when they are pricked they bleed—when you go down in that spirit, all you have to do is to go down and be natural and you can get next to them." That is the secret of Jane Addam's life—her very successful life. She lives with these people on the same level. After all, and beneath our dress suits, and beneath our fine clothed exteriors, and beneath the exteriors of these people, you will find the same loyalties, the same tender forbearing heart that can be touched by love and friendship. As Kipling has said:

"For East is East, and West is West, and never the twain shall meet,
Till earth and sky shall presently stand at God's great judgment seat,
But there is neither East nor West, border, nor breed, nor birth,
When two strong men stand face to face, though they come from the ends of the earth."

It is that confidence in the democracy of the United States of America, and its people that gives me hope and that gives me the inspiration for many of my dreams. I don't want all my dreams to be realized. But what we have already seen realized should give us heart and faith in our democracy. When a few weeks ago the President of the United States went up to the city of Carlisle, on the border between England and Scotland, and there sat in the little church where his grandfather was minister, and visited the house where his mother was born—the mother who came to this country when seven years of age—there was illustrated the glory of our American democracy. The son of that girl is not only the President of the United States, but the leading statesman in the world. What America has done for Woodrow Wilson, she is doing today to a lesser extent for the millions of men and women who come here dedicating their lives to that fine democracy and those ideals in which we trust we may never lose faith, and which we may carry to the limit, as men and women are found worthy. (Loud applause.)

Toastmaster Laughlin: Ladies and Gentlemen, so long as the United States Government has in its department of labor men who express and practice the sentiments expressed by Doctor Vander Pyl, I have no doubt but that the dreams of the laborer, if they are at all in accord with the department of labor, will come true.

We have been edified, instructed, and amused, let us hope. We have said a few words by way of idle persiflage. Bear in mind whatever we said, if it offended, we smiled when we said it. Mr. Randall will make a few remarks and Mr. Robb, who, by the way, announced he is a singer, will lead in singing "Auld Lang Syne," if he can, and then the respective speakers will take their places at the door and receive your congratulations. (Applause).

Secretary Randall: Not a few remarks, just a word of thanks to those who afforded us this remarkable entertainment. We will carry home with us, Mr. Toastmaster, memories which will live in our minds as long as we live. This night will come back to us many times. I want to thank you, Mr. Toastmaster, and all these other brainy men who have contributed their share in this night of pleasure, in behalf of our association.

The audience joined in singing "Auld Lang Syne."

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

THE situation in the New York market hasn't changed materially since last month. Probably a little more inquiry for common brick has developed, but in the main builders are still marking time, waiting for the revival of the building movements. More permits are asked for and a generally better condition seems to be developing, but as yet it is insufficient to make any material difference in demand. Prices for common brick range around $13.50 to $15.00. Arrivals are small, though the river has been open all winter. The harbor tie-up didn't affect the brick business much because none were coming down. Some are expecting a revival of building within the next few weeks, but most contractors will operate conservatively till they pass the fateful May 1. After that they will know what labor wants and whether they will be able to do business at the demands which may be filed then. Not all wage contracts expire this year, but those that do may be the subject of considerable negotiation before they are accepted by both sides. With all the difficulties in the way building doesn't look as promising here as it commonly does at this time.

None of this is because new buildings are not needed. They are. The city is so badly underbuilt that even rented rooms are at a premium and those who look for single furnished rooms have a long search. But until readjustment has gone a little farther much increase in building need hardly be expected.

The railroad administration is doing its part in reducing freight rates on building material, but until the government influences that prevent the loan of money for construction purposes withdraw their opposition it will be difficult to obtain capital to proceed with the needed developments, while speculative building will be substantially unknown. These are all factors in a situation which has grown more disagreeable as the season has advanced and it has become necessary to hold up preparations for building until something more definite is known about the attitude of the government respecting the loan of needed capital and the possibility of obtaining material considerably cheaper than now.

Not much has been done this winter in the brick plants up the river. Sales have been so small that some yards with a small surplus on hand have done no business at all. Others have sold a little, but the quantity is too slight to consider, when compared with previous winters. With the riven open all winter makers could have sent down considerable stock had the market been favorable. Some cargoes that came late are still covered and no one seems disposed to buy at present. Movement is limited to very small purchases for repairs. Conditions do not favor an early resumption of normal activities at the yards.

The question they have to decide this year is labor and its cost. At present the situation is such that no one can say definitely what the outcome will be. Some hope for a resumption of usual activities, but confess that they see small hopes of it. Others are more sanguine and appear to think that they will be able to do business about as they have done it in years past. If the building trades begin their activities with any approach to normal activities the market will improve so much that the yards will immediately feel it. They have no great surplus, though sufficient is left to start business this spring and any considerable call will clear them out.

A. L. B.

This promises to be a great year for advertising, and a great year for those who do the advertising. What will happen to those who don't time will tell.

CORRESPOND-ENCE.

These columns are open to all. The full name and address is required, but will not be published except when permission is given. Those desiring to communicate privately with any correspondent whose full name is not given can do so by addressing letters care of Clay-Worker.

CONVENTION ECHOES.

Proud of the National Convention.

Dear Mr. Secretary:

I agree with you that the National Convention was sure some success as a convention, and it surely pleased the local folks; everyone is proud of our fine showing. Should all conventions be conducted on the same high standard as the Pittsburgh convention, the Brick Manufacturers will get their proper place in the Sun.

I surely wish the N. B. M. A. and yourself every success.

Yours very truly,
ANDREW LANZ,
Treasurer of Penna. Clay Club.

Compliment For The Secretary.

My dear Randall:

I just want to avail of this opportunity to tell you how much I enjoyed the convention, I had the best time of any convention ever attended, the papers were all better than the average.

That joint meeting with the New York Building Officials Conference was exceptionally valuable.

The entertainment features were fine, in fact the entire program was very well ordered, leave it to "Randall."

Respectfully,
Elkhart, Ind. JOHN C. BOSS.

A Fine, Enterprising Spirit.

My dear Mr. Randall:

I am sure you will like to know what your friends think of the annual association meeting at Pittsburgh—hence I am taking this first opportunity to drop you a line.

Considering the handicaps under which the clay industry has operated during the past two years I think the craft did remarkably well to send such a creditable representation to the Pittsburgh meeting. It took a lot of faith in the future, and in my opinion, was a fine exhibit of the enterprising spirit which characterizes the leading manufacturers in the clay industry, to get together as good an attendance at all the sessions as we had last week.

EDUCATIONAL: The program and the discussions were interesting and surely very profitable to those who were so fortunate as to be present throughout the sessions. I heard many refer especially to this phase of the convention.

SOCIAL FEATURES: So far as the social side of the week was concerned, we never had anything finer. The Wednesday evening smoker and the Thursday evening banquet were excellent. The addresses on Thursday evening have never been excelled.

FUTURE PROSPECTS: An optimistic vein pervaded the membership. An early resumption of normal business throughout the industry was the confident expectation of every one I met. Let us hope our dreams come true.

I congratulate you on your courage in leading the N. B. M. A. through another year.

Very truly yours,
L. W. PENFIELD, Vice President,
The American Clay Mach. Co.

Will Never Miss Another Convention.

Dear Mr. Randall:

Sorry I did not get to see you again before leaving Pittsburgh. I came in your office twice to say good bye, but each time you were out, and I could readily see during the week that you were busy enough to be a dozen men.

We all had a fine time at the N. B. M. A. convention, and will never miss another if we can help it. We thank you all for the courtesies shown during the convention and hope to have the pleasure of seeing you again some time.

With very best wishes, Yours very truly,
R. A. FONTAINE.
Martinsville, Va.

"A Great Success" Says a New Member.

Dear Mr. Secretary:

Your favor of the 10th duly received and of course I am glad to know you can use the views of our plant and will want some extra copies of the Clay-Worker showing same.

This was my first N. B. M. A. convention and I enjoyed it very much, as did all of the home people. Believe that everyone who attended feels that way. It was a most successful convention and I congratulate you on the good work done, and hope it will be my good fortune to meet you at future conventions.

H. F. KEMPER,
Beaver Clay Mfg. Co.

The Pittsburgh Convention Very Instructive and Profitable.

Dear Randall:

Mrs. Burgess and myself arrived home Monday evening. Feeling much better for having attended the N. B. M. A. Convention, which was a very instructive and profitable one. I also saw many places of interest in Pittsburgh such as the Carnegie Institute, Memorial Hall, County Buildings and also the Pittsburgh markets on a Saturday night. It was a great pleasure to meet a number of old friends we made at the N. B. M. A. Convention and shake them by the hand once again. And I particularly want to thank you on behalf of the Canadian Clayworkers for our privilege of being able to attend your convention and enjoy all the proceedings.

Thanking you for what you did to make things pleasant for all Canadians while in Pittsburgh, I am,

Yours very truly,
Toronto, Feb. 17, 1919. WM. BURGESS.

Ex-President Clippert Considers Convention One of the Best.

My Dear Randall:

Just a line to let you know that Mrs. Clippert and I finally arrived at home safely and well after our visit in the East following the convention.

To my mind the convention, viewed from any angle, was one of the best in the history of the Association, and we shall never forget the courtesies and kindnesses extended to us by the Pittsburgh people.

The business outlook is better and we hope for a busy year. My son, Harry, has doffed his uniform and is again with us at the yards, which adds to our content and happiness.

Trusting that this short note will find you in your accustomed good health and spirits, I am,

Yours very truly,
GEO. H. CLIPPERT,
Detroit, Mich., February 24, 1919.

Enjoyed Convention Very Much.

Friend Randall:

The writer was glad to be able to attend the N. B. M. A. convention at Pittsburgh for a short time, and enjoyed same very much. Am very glad this was such a successful convention and that everybody seemed to enjoy themselves so much

Sincerely yours,
H. R. BEEGLE,
New Galilee, Beaver County, Pa.

Considers Brickmaking a Basic Industry.

Dear Randall:

Wish to acknowledge receipt of your kind letter of the 10th inst. While you are very good to magnify any slight assistance the writer was able to lend the local committee, we are in entire sympathy with any movement for the good of brickmaking, which we look upon as a basic industry. Its fundamentally permanent features are emphasized by the strenuous efforts expended by substitutors.

B. Phillips.

However, we are glad that you felt repaid for the efforts you put forth in behalf of the delegates and their program.

Only the exigencies of closing ordnance contracts which had been in a state of suspension since the date of the armistice prevented our attendance at all the sessions and entertainments.

Thanking you for your letter and assuring you of our personal good wishes, believe me,

Yours very cordially,
BAYARD PHILLIPS.
Pittsburgh, Pa., February 14, 1919.

Convention of Great Benefit.

Dear Mr. Randall:

The writer was compelled to leave Pittsburgh before the close of the meeting and neglected to get the last issue of the Numerical Roster, and would greatly apprecciate it if you would mail us a copy of same.

I am particularly pleased to note the good attendance and interest manifested by all those attending, and feel that we were greatly benefited by attending this convention.

With kindest personal regards the writer begs to remain,

Very truly yours,
J. L. BUCKLEY,
The Philadelphia Drying Machinery Co.
Philadelphia, Pa.

N. B. M. A. Founded on Correct Principles.

Dear Mr. Randall:

I have been unavoidably delayed in replying to your cordial letter of February 10. As to the convention, I think all who attended will agree that it was the most largely attended most enthusiastic and most progressive which has yet been held. All branches of the ceramic industry were well represented and there was enthusiasm in every line, as indicated by the divisional meetings and the plans laid for making permanent these professional divisions and the holding of the meetings from time to time throughout the year between the annual convention dates. The American Ceramic Society has now securely established itself as a recognized technical society of standing, and I find that the conventions are being widely reported and the Journal of the American Ceramic Society widely quoted.

The above remarks apply, of course, to the convention of the American Ceramic Society, but from what I saw of the first day or so of the convention of the N. B. M. A. you and the other executive officers are to be congratulated upon a splendid convention. It is nothing new, however, for the N. B. M. A. conventions to be largely attended and to exhibit enthusiasm, and the fact that the N. B. M. A. conventions are so successful year after year shows that the Association is founded upon the correct principles of mutual business interests and good fellowship.

I enjoyed meeting you again at Pittsburgh, and trust that 1920 I shall again have the pleasure of seeing you when these two splendid societies, the A. C. S. and the N. B. M. A. again convene.

Yours very truly,
L. E. BARRINGER,
Chairman Committee on Publications.
Schenectady, N. Y., February 21, 1919.

Convention Papers Worth Weight in Gold.

Dear Mr. Randall:

We are in receipt of yours of the 12th, together with six copies of the latest edition of the Pittsburgh Roster, for which we want to thank you. As we believe this to be the livest mailing list we could get hold of we appreciate it very much.

As this was the first brickmakers' convention the writer has had the privilege of attending, and I must say it was far past my expectations. It has been my privilege during the past eight years to visit a great many clayworking industries, but I never dreamed there was as much enthusiasm in the family of clayworkers. As you met and talked with each individual member you found him fully alive to his own line, and while the brickmakers have been hit hard by the war, they all seemed optimistic. It seems to the writer that a man interested in clay work in all its different branches could not afford to stay away from these conventions, much less being a member of same. There was hardly a topic at any of the sessions but which should have been worth its weight in gold to a clayworker, especially when such subjects are of such great interest to one not familiar with the manufacture of clay products.

In selection of topics and assignment of topics, it seemed the topic and speaker were one, and the subjects were handled by men fully capable of being leaders of their subject. One particular subject impressed the writer, the second session on Thursday a. m., "Over the Top in the Brick Business." This "Over the Top" is the great slogan of the day, and there is not a chance for a failure when these three little words, "Over the Top," are used as a guide post, and with conventions and men capable of handling them as this convention was handled, success is bound to result.

The social features of this convention were a howling success, the entertainment for the ladies was per excellence the smokerette, the N. B. M. A. banquet, all of which went to make a success of the convention, and our best wishes are that success may crown all future N. B. M. A. conventions.

We are, Your friend,
C. W. JOSLIN,
The Conneaut Shovel Company.
Conneaut, Ohio, February 22, 1919.

Sewer Pipe Man Favors Representatives of All Branches of Clay Industries in N. B. M. A.

Dear Friend Randall:

I wish to congratulate you further on the remarkable success of the recent convention of The National Brick Manufacturers' Association, held at Pittsburgh, the results of which we feel were accomplished to a great extent through your personal enthusiastic efforts, as in the past. We were sorry that we could not attend every one of the very interesting and profitable sessions.

We were greatly interested in the paper read by Professor A. V. Bleininger, and particularly in that part pertaining to the co-operation of the many different branches of the clay industry, in that they organize in some way for the promotion of clay products generally in the various ways in which this can be done, such as advertising and legislative efforts. Over five years ago, shortly after our Bureau was organized and we had entered the promotion field, it appeared to us that an organization similar to that mentioned by Professor Bleininger, should be undertaken, and prompted by the possibility of a big display at the Panama Exposition through the combined efforts of the clay industry, we wrote our suggestion to a clay industry magazine, but they argued that although the idea was a good one, the time was not yet ripe.

There is a big field for indirect advertising for the different branches of the clay industry. For instance, previous to attending your convention we were in Harrisburg, Pa., having in mind the formation of an organization with a view to ultimately introducing an amendment in the Pennsylvania legislature to the present state law, which is very unfair to our product. Realizing the importance of fair treatment to all concerned in existing state laws and amendments, we presented our plan to not only those upon whom we could depend for support, but also to those who had formerly opposed us, and it is our intention to introduce an entirely new plumbing law for the state of Pennsylvania sometime this spring. This will open up new fields to the plumber and will apply not only to cities of the first, second and third class, as does the present law, but to every part of the state where plumbing exists. The proposed bill will also embrace the stipulation that the plumber shall be resopnsible for proper installation of all plumbing and drainage materials. Further, it will prohibit the repair of any plumbing by any other than a licensed plumber. It will be a great boon to good health and sanitation advocates, to plumbers who are receiving the benefit of an extended field, the manufacturers of vitrified pipe who are given an equal oportunity to compete with other materials, and the builder who at the present time is demanding less costly as well as more sanitary installations.

John L. Rice, Akron, Ohio.

We have been considering getting behind a movement for a national plumbing code. The journeymen and master plumbers have for some time been agitating this, but have taken no steps, and it is our opinion that we should take the initiative on this and invite the assistance of both journeymen and master plumbers, and by so doing our object is to have vitrified pipe allowed to compete. No doubt we will do this; in fact, I am sure we will if we win in Pennsylvania.

With the new improved installation of vitrified pipe perfected by The Wyatt Engineering Company, which is the Research and Engineering Division of The Vitrified Pipe Manufacturers' Association of Akron, Ohio, we are daily demonstrating the merits of vitrified installations for all underground plumbing, and it is being satisfactorily proven to engineers, plumbers and contractors that through the use of the poured flex-form joint, vitrified pipe not only meets this condition, but furnishes a preferred installation for all underground plumbing.

Very cordially,
VITRIFIED PIPE MANUFACTURES, ASS'N.,
John L. Rice, Field Commissioner.

N. B. M. A. Member Enthusiastic Over Convention Benefits.

Dear Mr. Randall:

I am writing a few lines to thank you, also the Assistant Secretary and your son, for the courtesy and kindness shown me at the N. B. M. A. convention, held at Pittsburgh, February 3-8. This is my second attendance. I may say I have attended many meetings of clay products manufacturers in England, but never one where more earnestness and enthusiasm was shown than at the above convention. Every brick manufacturer in the United States of America ought to be a member of the N. B. M. A. I am convinced he will learn more at the convention than it is possible for him to learn through any other medium. It is impossible to put a value upon the button-hole talks, and the seed sown through coming in contact with manufacturers from one end of the land to the other cannot help but fall upon fruitful ground. I could not help but also admire the good feeling and fellowship shown by all the machinery maufacturers towards their fellow competitors. Nothing but good is bound to come to the trade from such good feelings and associations. Being practically an entire stranger, and a competitor in the kiln business, I must say that in the whole course of my long experience in the trade, covering nearly forty years as manufacturer and expert, I was never shown greater courtesy and had such eulogies paid me as by my competitors in the convention. In fact, my competitors were more enthusiastic over my new inventions in continuous down draft and continuous muffle kilns than the brick manufacturers themselves. As one gentleman remarked, any invention that brings down the cost of manufacture and simplifies production, deserves the thanks and recognition of the whole trade, it is patent to every one the cheaper the article can be produced the greater the increase in the trad and everybody will benefit all around.

Practically speaking, the trade is only just beginning in this great progressive and foremost country in the world, and no one will deny that bricks are the best, most economical and enduring article that is used in any building, and where we see one building built with brick now, we shall see twenty in the very near future; in fact, no one will think of building with anything but brick. The same remarks also apply to street and road paving. Homes built with brick are more cool in summer and warmer in winter than built with any other material, no matter what. It is a well known fact that bricks and other clay products will last longer under ground; in water, and above ground under all conditions and more impervious to the elements than any other material. It is the building material of the ages and will live through the ages unrivaled till the end of time.

It is such meetings as the annual conventions of the N. B. M. A. that is hastening the day when bricks and clay products will be the universal building material of this great country. My first attendance at an N. B. M. A. convention was at Indianapolis last year, and my continuous down-draft and continuous muffle kilns are children of that convention. It is solely to my attendance there and the button-hole talks that aroused my curiosity which set me thinking, that I invented and brought out the continuous down-draft and continuous muffle kilns. Some future time I will write you the romance of it all, for it is a romance. Suffice to say, this alone is ample proof and will show you and every man in the clay products industry the value of the N. B. M. A. and attending the convention meetings, and every clay products manufacturer I meet now, one of my first questions I put to him is. "Are you a member of the N. B. M. A.?" If he says "No," then I say to him, "You ought to be, as I am sure there is no other medium where a manufacturer can gain so much knowledge and benefit as he can from the annual conventions of the N. B. M. A.," and recite my own case as only one instance. I guess I am wearying you with such a long letter, but I felt I could not let my visit pass without writing you, for you are an indefatigable worker and courteous to a degree. I trust I may live to attend many more conventions and enjoy both the congenial company of both yourself and your son and see your smiling countenances. Just one more word or two, the Smokerette will always be a pleasant recollection to me as long as I live, and I think it will be to many others besides myself. Sail on. Yours sincerely,

Newport, Ky. H. WEBSTER.

Drain Tile Gaining in Favor in Northwest.

Editor The Clay-Worker:

Please find enclosed check in payment of my subscription to The Clay-Worker, which has been quite a benefit and profit to me along the path of clay industry. I have been engaged in the manufacture of clay products since a boy of twelve years. I am now fifty years old and still found by the light of the kiln fires. I made sand mold brick by hand while a boy and at the age of sixteen accepted a position with Geo. Robinson, Bellaire, Ohio, as superintendent, where we manufactured brick by machinery. From that time have been engaged in the manufacture of clay products and installing of plants from coast to coast. Am now engaged with the Star Brick & Tile Co. as their general manager and superintendent. Have been here for eight years, but for all these years of practical experience, I often appeal to The Clayworker for advice. I make drain tile at this plant, which is a new industry for this country as the farmers used cedar ditch covering, which would last about ten years. Since I started to make clay drain tile the farmers have abandoned the use of ditch wood and are now using the clay tile and I have all I can do to fill orders.

Wishing you and your patrons a very prosperous season, I remain, Yours truly,

Bay View, Wash. C. B. MAYHUGH.

Southern Brick Plant Soon to be Running Again on Pre-War Basis.

Dear Mr. Randall:

We regret very much our inability to be represented at the N. B. M. A. convention at Pittsburgh, which we know was a treat and of much benefit to all who were able to attend.

Our plant has been idle for several months but we are now making some needed repairs and hope soon to have our wheels humming again.

With kindest personal regards,

Yours truly,
J. W. TAYLOR,
Gen. Mgr. Summerville Brick Co.

American Brick Man in France Anticipates Return to States.

Editor The Clay-Worker:

I would appreciate it very much if you will send me your paper for the next three months, to the address below. Also would appreciate a few of the back numbers.

The writer was formerly president of the Shorey-Willis Brick and Supply Co., Cincinnati, Ohio, and as the time is now coming when I may be getting back home, I would like to know what is going on.

LIEUT. W. H. WILLIS, Engr.
Paris, France, February 14, 1919.

A GREAT HOOSIER BRICK PLANT.

A Five Million Dollar Brick Manufactory to Head Indiana's Great Clayworking Establishments.

CRAWFORDSVILLE, the Athens of America, is to have an added distinction, namely, the most modern clayworking plant in the world. Montgomery county, Indiana, of which Crawfordsville is the county-seat and chief city, is very rich in clay and shale. Experts who have examined the vast shale deposits pronounce them the richest and purest deposits of the sort that have yet been located in this country. Crawfordsville is a university town, being the home of Wabash College, so is an important educational center. It is located 43 miles west of Indianapolis, on the Peoria Division of the Big Four Railroad, and on the main line of the Monon Railroad, being midway between the main terminals, Chicago and Louisville, and is also an important interurban center. Its steam and trolley lines afford exceptional transportation facilities.

L. E. Rodgers, Chicago, Ill.

Hence Crawfordsville is an admirable site for a great manufacturing institution and it is a pleasure to note that its chief industry is to be a five-million-dollar clayworking establishment. The promoters are among the best known business men in Hoosierdom. Mr. Edward M. Brown, the president, though relatively a young man, has been very successful in commercial ventures. He has been the directing genius of the Standard Brick Company for several years. With him has been associated Ray Thomas, the superintendent of the plant, so there will be no lack of practical knowledge in the building and operation of the new plant which succeeds to the property, equipment and good will of the Standard Brick Company. Indeed, the new company is the old one grown larger.

This practical knowledge and good business judgment of the managers of the new company finds expression in the employment of the L. E. Rodgers Company, construction engineers, Chicago. Mr. Rodgers, an acknowledged authority in that field, will furnish the complete working plans for the entire plant, which is a guarantee that it will be modern and efficient to the last degree. It will be constructed in four units, each unit having a capacity of 30,000,000 paving brick annually. The present plant will be continued and enlarged to a capacity of at least 10,000,000, making a total yearly output of 130,000,000 brick. The company will employ, all told, between six and seven hundred men, and, as in all up-to-date industrial plants, ample conveniences, sanitary and otherwise, will be provided for the workmen, including provision for their transportation to and from their homes.

The company owns three hundred acres of exceptionally rich shale land, well situated for the purpose, and embodies every essential element for future growth and success. The new company has been christened the Standard Shale-Brick Corporation and will have a capital of $5,000,000.

ILLINOIS CLAY MANUFACTURERS' ASSOCIATION TO MEET IN CHICAGO, APRIL 9, 10, 1919.

THE FORTY-FIRST ANNUAL CONVENTION of the Illinois Clay Manufacturers' Association will be held in Chicago, Ill., April 9 and 10, the headquarters being in the La Salle Hotel.

In conjunction with this convention will be meetings of the Chicago Section of the American Ceramic Society, Indiana Brick Manufacturers' Association, Illinois Paving Brick Manufacturers' Association, Illinois-Indiana Division of the American Face Brick Association and the Illinois Drain Tile Manufacturers' Association.

The Illinois Clay Manufacturers' Association meeting will be held Wednesday, April 9; the Chicago Section of the American Ceramic Society will take place the night of April 9, followed by a smoker and informal Section Q meeting.

Thursday morning, April 10, will be given oven to separate meetings of the other organizations which will adjourn in time for a luncheon at noon. Thursday afternoon will be devoted to an inspection tour of clayworking industries in or near Chicago.

There is every indication that a large number will be present and a most interesting program is in course of preparation by the officials of the Illinois Association that all clayworkers will find very instructive and helpful in solving the problems before the trade at this time. One paper will be devoted to the question of Wages and Labor, by Professor Robinson, of the University of Illinois. An equally important paper will be on the subject, "The Use of Powdered Fuel," while another will be "Fuel Economies in Operating Periodic Kilns."

The clayworkers of Illinois, Indiana, Iowa, Wisconsin and surrounding states can not afford to miss this meeting. We urge upon the clayworkers in the central states to make it a special point to attend this convention.

The argument about selling brick by the ton had the good effect of making the brick folks think more on the subject of ways and means for getting more profit from the business.

Uncle Sam is now selling back to the farms and industry many horses and mules, and it makes a splendid opportunity for bargain driving for the good judge of horse flesh.

Written for The Clay-Worker.

SEEN IN NEW JERSEY.

MOST CITIES IN NEW JERSEY increased numbers of building permits are filed, but as yet the number upon which work has actually begun remains ridiculously small. Caution, conservatism, lack of necessary capital, and various other depressing influences are all at work and they manage to keep permits at a low point and actual operations still lower. Yet, as a whole, the situation is more promising than a month ago and conditions seem to warrant the belief that building will be resumed with the opening of spring weather. True, the weather has been like spring all winter, but no one dared begin excavations for cold weather might descend at any time and stop all operations until it passed. As it has turned out excavation could have gone on all the season. But it hasn't, and today no one can say definitely when it will begin. They hope soon.

The price of brick has not shifted much. Whatever quotations are given are in a sense nominal since no important sales are made. Here and there a little repair job or the erection of a small house make about the only activity that can be found among brick men. In Newark prices are from $14.50 up. Jersey City quoted around $15.00. Paterson has held stock as high as $16.00, but they could be bought below that if anyone came along who really wanted brick. Elizabeth quotes $15.50. Englewood has no quotation. Hackensack quoted $13.50 at the yards. Raritan brick are held at $14.00 or thereabouts at the yards. Trenton will sell as low as $14.50 if the buyer shows any disposition to place an order. Perth Amboy has taken as low as $13.00, but the usual quotations are from $14.00 to $15.00. These figures are all nominal and a firm order for any definite quantity would bring out more favorable quotations in most of these localities. Sellers would be glad to see business at any figure, though they do not feel that they can reduce their prices much more in view of the heavy production costs. That has been a difficulty which few have been able to overcome and it necessarily causes apprehension in the minds of all makers and sellers.

Whether or not makers are going to work their plants to capacity this season will undoubtedly depend largely upon how much labor they can get and what it costs and upon the probable demand for brick this summer. If building goes forward upon the scale which seems likely, once financial matters are satisfactorily adjusted, brick plants will have to operate to something approaching capacity since the surplus is small. But if building is to be retarded because of the impossibility of securing capital with which to work then brickmaking can well be reduced to a minimum of the regular output. What happens in the next few weeks will have much to do with the decision of the owners of brick plants in New Jersey and vicinity. Probably most of them are looking forward to better times, but they are still uncertain about their probable action this season.

The report is that building operations in and about Paterson will be more or less delayed this spring by the effort of certain building trades to secure an increase in wages. They are about to ask for what amounts to a dollar an hour, it is said. Some of the agreements expire May 1 and the new ones, now in course of preparation, are all at much higher wages. It is pointed out that with all other costs as high as they are now it will be impossible for builders to advance wages as much as the different trades ask and a reduction in actual business for weeks, or until settlement is affected, seems probable.

Among the building permits issued during the month was one for an apartment house in Paterson to cost $75,000, and another for a silk mill to cost $13,000. Both are to be of brick and work on the apartment house will begin immediately while work on the silk mills is not likely to begin for some weeks yet. Mayor Amos H. Radcliffe, of Paterson, has been elected to congress and will resign as mayor before very long, but before he leaves office he has announced his intention of seeing two new trade schools, to cost in the aggregate upwards of half a million dollars, begun. The schools are badly needed, none having been built for three years, and one is needed about every year. The war held up both operations, but the two are to begin at the same time, or at approximately the same time, and that as soon as arrangements can be perfected.

Reports from the Raritan river section are to the effect that the large all-winter plants are running to only partial capacity, though some of the fireproofing plants have increased their operations a little since March opened. They are looking forward to improvement, though the management of several plants says that it doesn't look very promising yet. However, the fact that something has been done toward breaking the unfortunate deadlock encourages makers to think that before very much longer they will be able to develop more business. They look forward to much residence building as a result of the thrift habits learned during the war and they feel confident that the same thrift will influence builders to select brick because of its beauty and its lasting qualities. Some firms are placing these facts before proposed builders very forcibly at the moment and think they can begin to see the improvement in inquiry already.

And the fact that some are doing this leads inevitably to the conclusion that the outlook would brighten perceptibly if all would do it. The keeping everlastingly at advertising is what brings home the bacon. It is useless to expect the best returns from spasmodic efforts, though, of course, these are better than not any. What is wanted is a steady hammering at the intelligence of readers. And brick men will have to undertake this hammering on a large scale because cement men and lumber men are doing it. For example, the architectural monographs issued in the most elaborate style, with beautiful illustrations, which are published by the white pine people, and they are only one series. Aside from the work of a number of large brick firms who issue delightfully prepared and printed house organs nothing of this sort is done. And it is to be feared that these handsome publications partially fail of their purpose because they go to architects or builders whose knowledge of brick is already solid. What is wanted is to reach the people themselves who are having the work done. When the brick firms get together in some method to do this effectively they will accomplish something worth while. But until they do go direct to the consumer they will have to accept the crumbs which come to them after the other astute advertisers have eaten the bulk of the load.

A. L. B.

CLAY PRODUCTS COMPANY MAKING CHANGES.

The Clay Products Company, operating plants north and south of Brazil, Ind., has abandoned a huge clay and shale pit four miles south of that city where operations have been carried on for a number of years and obtained a lease in part of the Austin Shattuck farm one and one-half mile southeast of the south plant from which coal and clay will be produced. The task of removing one of the largest steam shovels in the State of Indiana with an ordinary house moving apparatus was accomplished by an Illinois contractor. The operation required several weeks. The company now is constructing its own railroad from the south plant and will operate its own trains.

CLAY MEN AT MINNEAPOLIS.

Reconstruction Meeting Considers Many Matters.

THE ELEVENTH ANNUAL CONVENTION of the Northwestern Clay Association was held in Minneapolis, February 20 and 21. There was about the usual attendance, and in view of the difficulties which have attended the business during the past year, the meeting was quite a success. The building business in the Northwest has been affected worse than in other sections of the country, for the usual run of building was suppressed because of the war and there was very little construction allowed to go ahead because of being connected with war business. Hence the sale of brick during the past year has been quite limited with most yards.

It was hoped that the extraordinary conditions would lead to a comparison of costs and a chance to work out a set of standardized cost charges, so that all members might be in a position to figure their costs on the same basis, and have an equal understanding as to whether they were making money or losing. But a number of the members felt that because of the unusual conditions, their costs would afford no proper basis of comparison. So that proposition could not be worked out at this time. It is still hoped that the plan may be put in effect at some future meeting to the improvement of conditions generally.

The opening session, after preliminaries were disposed of, was marked by the president's address of welcome, by President R. H. Smith. He had but little to say as to the conditions of the past year, but expressed hope that the coming season would go a good ways towards overcoming the adverse circumstances of the past, due to the war.

A most interesting talk was that of Frank J. Pollay, a staff speaker from the U. S. Department of Labor. Mr. Pollay outlined what the government is endeavoring to do to provide work for the returning soldiers. Employment is to be provided in every way possible, and cities and counties are being urged to do their full share in starting all possible work. To employers, he stated that among the many changes which have developed as a result of the war. was a new condition of handling adjustments of wages and other conditions between employer and employe. The old system of the side which had the power exacting all possible tribute, is past. An employer may no longer exact everything possible from workmen, because he feels that it can be done. Workmen may no longer attempt to handicap every move which an employer may make, because they feel sufficiently strong in their organized effort. Instead it is a time of conciliation and mutual consideration. Employer and employe must get together on a common platform, discussing the things which affect them both, and working to make their interests and desires common and not antagonistic.

In the evening was, the annual banquet, followed by a theater party at the Orpheum.

A resolution passed at the recent session of the state association of brick and stone masons was read which urged the pushing of the construction of masonry construction that their members might have employment and the producers of materials might have a market for their wares. This was regarded as a hopeful attitude, since it was thought to be the first case in this state where such a statement came from the workmen. Suitable recognition was made of the resolutions.

The report of the treasurer showed all bills paid and a reasonable balance left in the treasury.

The nomination committee presented the following names, which were duly elected:

President—F. B. Martin, Minneapolis.

Vice President—C. K. Willard, Heron Lake, Minn.

Secretary-Treasurer—H. W. Linder, Minneapolis.

Executive Committee—C. J. Swanson, Minneapolis; W. A. Ochs, Springfield, Minn.; Jacob Voelker, Winona, Minn.; V. F. Kreycik, West Concord, Minn., and G. A. Welch, Minneapolis.

A suggestion was endorsed that the members upon their return home be boosters for the development of the brick trade in each community. T. WIN.

Written for The Clay-Worker.

AMONG PHILADELPHIA BRICK MEN.

IT APPEARS TO BE JUST a matter of time—and a short time at that—when the building contractors, and other users of brick and clay products, will come to the realization that the cost of brick will not come down. There has been very little activity in this vicinity for the past month and it is the opinion of representative brick men of this city that this dull period is directly due to the general belief among users of brick that prices will come down with a crash before it becomes absolutely necessary to purchase supplies for spring building. This opinion, as regards to prices, is not by any means local; leading brick men throughout the country are unanimous in the expression of the opinion that the price of brick will not be lowered. They argue that the production costs have been steadily increasing during the war and virtually all of the brick now on hand has been produced when the cost of labor, supplies and transportation were higher than they ever have been in the history of the country. The producing capacity of the brick plants has been greatly curtailed during the war, yet overhead costs have continued at virtually the amount necessary for capacity production. The manufacturers have not made money. Labor is still short in this district, and while a slight activity is commencing to manifest itself, it is so slight that the producers will not feel the results of it for some time. Inquiries are gradually becoming more numerous but as there has been no buying accruing from them local manufacturers are inclined to believe that they are merely "feelers." However, this section of the country has experienced very little weather during the past three months that could be termed winter; the climate has been exceedingly mild. Warm rains and even a thundershower was experienced during the month of February, with the result that the ground is in an excellent condition for excavating. It is evident that building contractors have only been held back from starting a revival of building activity by the feeling that we may yet feel some real winter weather—although there is little chance that any will be experienced from now on. Therefore, it can be reasonably expected that the enormous building program that has been held in abeyance since the United States entered the war, will be launched before the month is over. Much interest is being manifested by local brick men in regards to the "Own Your Home" campaign, which is to be launched during the week of April 21st by the Philadelphia Real Estate Board. The campaign will open with an exhibit at the First Regiment Armory, in which will be shown everything that goes into the making of the home, from the cellar to the roof. Local brick manufacturers have been working in co-operation with the members of the real estate board's campaign committee in order to assure the complete success of the exhibit and the campaign.

Among the most notable plans being prepared at the present time is that of a seven-story brick theater and office building in Allentown, Pa. The building will cost in the neighborhood of half a million dollars.

In a recent interview with Chambers Bros., of this city, the present difficulty in securing any satisfactory basis for foreign trade was brought out. This firm has employed an engineer who has been in France for three months making a study of conditions in that country and in other parts of Europe where there seems a possibility of future trade connections. Mr. Chambers said that they had expected their engineer to stay over on the other side for a year, but for some reason he was now on his way back to make a report. Mr. Chambers said that from what he could learn so far, the French government was as yet reluctant to allow any importation of foreign materials.

As far as business was concerned, William Conway, veteran brick manufacturer of this city, said the other day that he could not make very many encouraging remarks. He did say, however, that the labor situation has eased up to an encouraging degree although he was still paying the same wages as he had during the war. "But I am securing a better class of help," he concluded. Mr. Conway has just returned from a trip as far west as Indianapolis and Chicago.

A very encouraging report comes from Dr. C. B. Thwing, of the Thwing Instrument Company. He says that the instrument business has not suffered any dull days during the past month and that there is every reason to expect a prosperous year. Dr. Thwing just recently returned from a trip throughout the western section of the country, being gone ten days. Immediately after his return, E. J. Albert, sales manager of the company, set out to attend the twenty-first annual convention of the Canadian Mining Institute, held in Montreal on the fifth, sixth and seventh of this month.

The summary of building operations for the month of February speeds up the total so far for the year and helps to balance the smaller record of January. The summary shows that although the amount in dollars spent during the past month was not notably larger than the month previous, there were a greater number of operations undertaken. Both the amount of expenditure and the number of operations, of course, greatly exceeds that of the corresponding month of 1918. The incessant demand for houses has created a very healthy condition on the real estate market.

A QUAKER.

OBITUARY.

Isaac H. Tyler Answers Final Summons.

Isaac H. Tyler, member of one of the oldest families in Louisville, Ky., and for many years actively identified with the selling end of the brick business, died of pneumonia, March 22. Isaac was in former years connected with his brother, Owen Tyler, in the brick and building supply business in Louisville, and a few years ago, together with Leo M. Parsons, organized the Tyler Builders' Supply Company, which a few months ago was merged with the R. B. Tyler Company, with which Isaac continued his connection till his death. He is survived by his widow, who was Mrs. Bertha Edmonds before their marriage, which took place only a few months ago; by his mother, Mrs. Jennie Owen Tyler; a brother, Owen Tyler, and three sisters.

C. M. Hughes is a recent entree in the builders supply trade at Nashville, Tenn.

Written for The Clay-Worker.

BRICK NOTES FROM DIXIE LAND.

BUILDING DEVELOPMENT has made no great progress in the Tennessee cities, yet there are a few definite projects that may take form in the next sixty days. It really looks as if there will be a fair amount of spring building and just a little more activity in the summer. The clay and pottery interests of Tennessee and Kentucky are running along at a normal capacity, some of them after a brief lapse. Labor conditions are growing more easy and demand for product is good.

The addition to the Post Office or Custom House at Nashville is about completed. Some cement, tile and terra cotta products were used, but to conform to the old portion of building Bowling Green stone was the chief product in exterior.

There is considerable residential work, flat and apartment house work in prospect at Nashville.

At Chattanooga, as well as Memphis, a new auditorium project is before the people. At Memphis the project has taken definite form and Memphis architects are at work on tentative plans. By the month of May, further progress is assured. The site is probably the old court house site, Main and Poplar, where the Overton Hotel stood in Civil War days. Combined with the $750,000 auditorium will be a city market.

The Chattanooga Builders Supply Co., 910 McCallie avenue, is handling a line of building materials, brick, terra cotta and other building specialties.

The James Supply Co., of Chattanooga, is actively identified with several branches of the building supply trade.

O. E. Deppen, of the Chattanooga Sewer Pipe Works, was seen at his office. Mr. Deppen says that despite war times they had a very good year last year, that the plant at Chattanooga is operating steadily and while spring activity has scarcely opened there is a good even tenor of trade. They manufacture clay sewer pipes and clay products for their several purposes and are one of the pioneer institutions in the South.

T. L. Herbert and Sons, at Nashville, on Third avenue, North, near Church street, are showing a big line of fire brick, sewer pipe, terra cotta in their sample rooms and in this line of business are active at Nashville and neighboring towns.

C. Sparks has resumed his work at McKenzie, Tenn., operating a pottery for the manufacture of jugs and jars. He was not operating during the fall months. He lost one of his sons, Elry Sparks, in the war service in France. The young Mr. Sparks had been with his father in the pottery business for a good many years.

H. E. Parmer, at Nashville, Deaderick avenue, is handling a line of tiling and fancy building supplies for interior finish.

John J. Bishop, formerly with the Memphis Brick Supply Co., Goodwyn Institute, Memphis, has entered the automobile business on Monroe avenue, the same city, being connected with one of the leading agencies.

The Memphis Brick Supply Co., Goodwyn Institute, Memphis, report building prospects for spring somewhat in abeyance but outlook good for the year. They show a line from several of the leading terra cotta brick companies and are very active in the Memphis section.

The South Memphis Brick Co. is inactive at the present time but it is stated that it will be put in commission in a short while.

Fulcher Brick Co., at Nashville, is furnishing material on several jobs in southern towns and report good business.

DIXIE.

THE HOLLOW BUILDING TILE MANUFACTURERS HOLD ANNUAL CONVENTION.

THE MEMBERS of the National Association of Building Tile Manufacturers met in annual convention at the La Salle Hotel, Chicago, March 19 and 20. Virtually the entire membership was represented, and a dozen or more firms, not members, were represented. The latter will probably join the association in the immediate future. At any rate, they should do so. Wednesday forenoon was devoted to routine business, following which Mr. M. F. Gallagher gave an instructive address on "Your Increased Freight Rates—What Are You Going to Do About it?"

In the afternoon the members and visitors were treated to several most interesting addresses, each bearing on the present needs of the building tile industry. Publicity was the slogan of each speaker, though each discussed the problems of bettering the industry from varying view points. Mr. W. D. James, of Fort Atkinson, Wis., successfully demonstrated that there is a wide field for trade expansion in connection with farm buildings, especially stock barns and silos. Mr. C. L. Rorick, of Chicago, followed with facts and figures proving that there is a great need for renewed activity in the building world, both city and country. Mr. W. H. Rankin, of Chicago, clinched the argument by telling what the National Government has done during the war period by efficient publicity. His chief argument, and the illustrations, are so convincing that we reprint them in this issue as a starter in a "Build Now" campaign, which it is devoutly to be hoped will be pushed to a final and successful issue.

Tuesday was given over to official business, the election of officers, etc. The present official family, headed by President H. C. Downer and Secretary E. R. Sturtevant, were reelected unanimously and a vote of thanks extended them for efficient, faithful service. After much discussion, which at times became quite fervid, it was agreed to so amend the constitution of the Association that the directorate might be increased to twelve or more, thus taking in representatives from sections not now covered. All present were agreed that the important measures demanding immediate attention are an accurate and uniform system of cost accounting, the stabilizing of prices, and the standardizing of products. Proper committees were appointed to consider these measures and report at a subsequent meeting.

THE INTERNATIONAL CLAY MACHINERY CO. RETURN TO PEACE BASIS.

At a recent meeting of the directors of the International Clay Machinery Company, of Dayton, Ohio, Mr. R. H. McElroy was made vice-president and general manager; a well-deserved promotion. Now that war supplies and apparatus are no longer wanted the company will return to its first love and give its undivided attention to the production of brick, tile and pottery machinery and supplies.

During the past year or two the company has given special attention to equipment for railroad tunnel kilns, particularly the steel cars required for that branch of the trade. (On page 417 of this magazine are shown three types of cars which have gained great favor by virtue of superior construction.) The I. C. M. Co. has in past years been leaders in the production of producer gas equipment for clay plants and will continue to specialize in that important feature of modern plant equipment. The company announces that it has an agreeable surprise in store for clayworkers in the way of some improved machinery which will be shown in the pages of The Clay-Worker in the very near future.

THE CLAY-WORKER

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A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T, A. RANDALL & CO. [Inc.], Indianapolis.

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CURRENT COMMENT.

"Build a Home First."

* * *

Home-building propaganda is the order of the day.

* * *

The best home is one built of well-burned clay products.

* * *

Improving the home surroundings means improving the citizenship of the country.

* * *

The building campaign should really be a general one, for we need other buildings as well as homes.

* * *

Hollow tile for barn building is a splendid idea that is rapidly gaining favor in the agricultural districts these days.

* * *

The time has come when the strongly established nations of the world are having to face and answer the question, "Am I my brother's keeper?"

* * *

And let us not forget that what we are going to be needing soon, and are going to be needing even more as time progresses, is a larger army of bricklayers.

* * *

The railway administration experience has given a pretty serious black eye to the arguments for government ownership which used to be coming forth regularly from those with socialistic inclinations.

* * *

It will not be easy to set a general level of prices on lumber and brick, as is the case with metal products, because of the wide variations in the material and the different local conditions, but the brick men in each section of the country can get together and figure out what should be the post-war level for their product, and that will help some.

* * *

This is a time when, properly, Optimism should be in the saddle. Let the Pessimists get down and dig.

* * *

We need not expect much reduction in bread prices till the new wheat crop comes in, but then we should have it, promptly and in the fullest possible measure.

* * *

The experience of last year proved pretty conclusively that moving the clocks up an hour leads to earlier rising, so we are to try it again as a tonic for spring fever.

* * *

From the looks of things, hollow building tile has a big opportunity for development before it now, and it would be a pity to spoil it all with a war of prices. Let us have an era of peace and fair profits.

* * *

A good brick building erected five years ago is worth more today than it was when first built, for building costs more now and a good brick building does not depreciate perceptibly in value with the passing of time.

* * *

Good wages for labor means that the laborer, too, can build a better home. So let us maintain good wages, but at the same time let us remember to distinguish between this and industrial domination by labor agitators.

* * *

Electricity for power transmission has room to play a bigger part in the clayworking industry than it has yet played, and it is time for the electrical supply men and the clayworker to be getting together on this subject.

* * *

One chronic trouble with the clayworking industry is in that it has not yet learned to regard salesmanship as an important factor in the successful pushing of business. Selling is not a mere incident in business; it is a prime factor.

TWO KINDS OF MEN.

"Good Impressions" for March tells us that in every organization there are two kinds of men: Those who go ahead and do something, and those who sit by, criticize and ask why that something wasn't done some other way.

800 BRICKLAYERS ON ONE JOB.

In some statistics compiled by those in charge of erecting Air Nitrate Plant No. 2, at Muscle Shoal, Ala., the statement is made that in the erection of the nitric acid towers there were about 800 bricklayers working at one time under the same roof, probably constituting the world's record in bricklaying gangs. The permanent buildings at this plant involved the use of approximately 30,957 tons of structural steel, 262,000 barrels of cement, 10,000,000 brick, 1,500,000 building tile, and 100,000,000 pieces of vitrified acid proof brick and tile.

AFTER THE BOND SHARKS.

Uncle Sam is after the bond sharks, those folks who tempt Liberty bonds away from the owners at less than their real value, and especially those who offer some speculative stocks in return. And he asks that you will take the name and address of any one offering speculative stocks and securities, particularly in exchange for Liberty bonds or war savings stamps. Send the name and address with copies of whatever literature is being offered to the Federal Trade Commission, at Washington, D. C., and they will immediately institute an investigation of the matter.

VICTORY LOAN MEDALS.

Arrangements have been made by the Treasury Department to have medals made for all Victory Loan workers from captured German cannon. The medals will be half-dollar size, and will have a reproduction of the Treasury building on one side, while on the reverse will be certification of participation in the loan campaign, with room for engraving the recipient's name. All those who take part as active workers in the loan drive will be entitled to one of these medals as a souvenir.

CONCRETE CARS.

Among the news items of the month is one telling about the turning out of the first concrete railway car. It is an experiment reported as inspired by war conditions and the metal shortage, and the first car turned out was a coal car for the Illinois Central Railway. About the next thing we will wake up some morning and find them backing concrete cars onto the sidings of clayworkers for them to ship brick in. What d'ye know about that!

TIME FOR A GENERAL HOUSE BUILDING.

The Cynthiana Democrat, down in Kentucky, turns loose the following: "There is not a house to rent in Cynthiana, and the demand has been much larger than the supply for many months. The same conditions prevail in all Kentucky. Exchanges from other states show like conditions generally over the country. Where did all the people come from?"

Well, Cynthia, we don't knew just where all the people came from—maybe the stork brought them—but this reads good, and we do know that if the people want to start a general house building the brickmakers will get busy and furnish them with the best building material on earth for the work.

TO STABILIZE PRICES.

Even though congress did not repeal those anti-trust laws, and a statement was sent out some time since from the Attorney General's office promising prosecution of efforts to get together and fix prices by agreement, there is a movement on, inaugurated by Secretary of Commerce, William C. Redfield, which holds promise of some price fixing by agreement, with governmental sanction, the object being to stabilize prices at a logical post-war level.

What is known as the Industrial Board of the Department of Commerce has been formed, with the following personnel: George N. Peek, chairman; Samuel P. Bush, Anthony Caminetti, Thomas K. Glenn, George R, James, T. C. Powell, and William M. Ritter. The members are all business men of prominence except Mr. Caminetti, who is Commissioner General of the Department of Labor.

The idea in the main is for this committee to get together with representatives of the leading branches of industry, to canvass the situation and establish by agreement some logical post-war price schedules. Evidently the work will be somewhat along lines followed by the War Industries Board, with the difference that in this case the Board acts only in an advisory capacity, having no authority to name an arbitrary price nor to enforce the following of its suggestions. If it does its work well, however, and has proper co-operation from the industries good results should be obtained in the way of stabilizing prices and stimulating industrial activity.

BUILDING PROMOTION.

There is a pretty general realization not only among producers of building material, but also among government authorities, that one of the great needs, if not the greatest need of the day, is a quick revival in the building industries. It will readily furnish more business and employment directly and indirectly than any other line of activity. So naturally quite a lot of attention is centered right now on the subject of promoting more building activity. Some of the activities resulting therefrom are being told of in the Clay-Worker, and we would like to tell of more, and eventually of a great building boom resulting from such effort. If you are putting forth active effort in your community to promote building tell us about it that we may pass the information along to others, that it may furnish information and inspiration to still further effort. Building promotion is the big idea of the year, so let us push it along, and push vigorously.

THE INFLUENCE OF ADVERTISING.

Many associations and many community organizations are this year trying out the good influence of advertising to stimulate building activity. And the good influence of advertising has official recognition from Washington. One of the many stimulating bulletins and posters sent out by the Department of Labor is addressed to advertisers, and reads as follows:

"It is the desire of the Department of Labor to stimulate business by suggesting to present advertisers that they increase their space, and to prospective advertisers that they bring their plans to a head and start advertising immediately.

"The surest and quickest way to bring business back to its pre-war basis is to overcome the general apathy to buying which exists in the minds of many people at present. Advertising will do this."

In a word, it is plainly evident that advertising is the influence that is to pave the way and start the wheels of industry on the road to busy times. Are you doing your part of it? If not, it is time to get busy that you may help make busy times.

CLAY AGGREGATE FOR CONCRETE SHIPS.

In the Little Journal for February there appeared the following story about making artificial gravel for use in building concrete ships from clay:

In one of the Southern concrete shipbuilding yards all conditions were favorable except that there was no rock or gravel at hand, and concrete is not to be made without it. Sand was there in abundance and so was clay, but mud ships have not yet been accepted as reliable carriers on the deep seas.

Clay is curious stuff. Chemically speaking, it is a mixture of hydrated aluminum silicates with impurities in great variety. Its geologic history, however, is often more important than its exact chemical composition, for the conditions under which it has existed for the preceding hundred thousand years or so have a great bearing upon the size and structure of its particles; and in practice the physical nature of the particles of a substance has a great deal to do with its chemical behavior. The children of Israel needed straw to make brick, not that the straw fibre should serve as a binder, but because of a colloidal substance contained in straw which caused the particles of defective clay to bake into first quality product. It was a mean trick of the Egyptians to withhold straw and it was bad manufacturing practice, too.

Research with the Southern clay showed that if it is fixed at the proper rate and temperature very hard and porous lumps of the desired size result. Concrete made with them has practically the same crushing strength as that made with crushed rock. So proper apparatus was installed and the product used as aggregate. Owing to its porous nature it is very light, but the completed ships stood up to all the tests and proved to have a carrying capacity compared to dead weight clear above that of wooden or other concrete ships and nearly equal to those built of steel. A standardized contractor without the aid of a good chemist would have moved the yards or imported gravel.

FIRST AID TO DRY PRESS BRICK MANUFACTURERS.

A RECENT VISIT TO ST. LOUIS developed the fact that the city at the west end of the bridge is somewhat dormant in building activity. Distinctively a brick city, St. Louis has suffered from that tired feeling during the war period. Its natural growth demands an awakening, and it is pretty certain that the resumption of building, particularly home building and apartments, will come with the stabilizing of prices, which the Government approves. The process may be a little slow, but it is sure.

As the readers of The Clay-Worker know, St. Louis is the home of dry press brick. That branch of the brick business was hit pretty hard by the advent of the rough texture brick. It was thought that only a perfectly smooth brick could be made by the dry press process. Such is not really the case. Once more necessity, the mother of invention, has come to the rescue of press brick, and so we now chronicle the success of a practical brick man's effort to meet an emergency. Being a manufacturer of common and front brick by the dry press process, and realizing the necessity of adding rought texture brick to his output, Mr. J. Stocke, Jr., of the Progress Brick Company, began experimenting some years since, and finally succeded in devising an attachment to a dry press brick machine that enabled his company to turn out a very nice grade of rough texture dry press brick. A view of the device is shown on page 352 of this issue. It may profitably be termed "First Aid to the Injured" Dry Press Brick Manufacturer. It has enabled the Progress Brick Company to meet the demand for rough texture brick in their market. Other dry press brick manufacturers may do the same, for the device can be attached to any dry press brick machine. Mr. Stocke will be glad to give full particulars

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35000 OIL & GAS
BURNERS SAVING FUEL!
Perfected to
The Minute
HEAT TELLS!
Write us today
SCHURS OIL BURNER CO.
Los Angeles, Cal., U. A. S.

MISSISSIPPI BRICKMAKERS MEET.

The Mississippi Brick Manufacturers' Association held a meeting at Columbus, Miss., March 13, which was attended by brick manufacturers from Louisiana as well as Mississippi. An unusual feature of the morning session was an address of welcome by the president of the Columbus Chamber of Commerce, Ira T. Gaston, which was responded to by his brother, H. L. Gaston, who is a brick manufacturer at Hattiesburg. The latter, together with J. F. Osbourne, of Corinth, also gave quite an exhaustive report of the meeting of the Common Brick Manufacturers' Association held in Chicago recently.

Addresses on various phases of the brick industry were delivered by W. E. Eddins, Slidel, La.; F. V. Becker, Brookhaven; W. S. Lindamood, Columbus, and Rodger Friermood, of Greenwood. The visitors were guests at a luncheon at noon at which Dr. J. W. Lipscomb, of Columbus, presided as toastmaster. After luncheon the brickmen were given an automobile ride over the city and visited the big plants of the Columbus Brick Company northwest of the city. The convention, which was the first since the association was organized, was a most successful and profitable one.

It was decided to maintain as far as possible a uniform price of $14 for ordinary common brick, with $18 for the better grades.

W. N. Puckett, of Columbus, was re-elected president and Ferd Becker, of Brookhaven, secretary.

American No. 292 Repress

American

No. 292 Repress

There's a reason why the American No 292 Repress is giving universal satisfaction. The reason is that it is designed and built with the object of making it a success.

Those who are using it will tell you of its dependability. We will refer you to them on request.

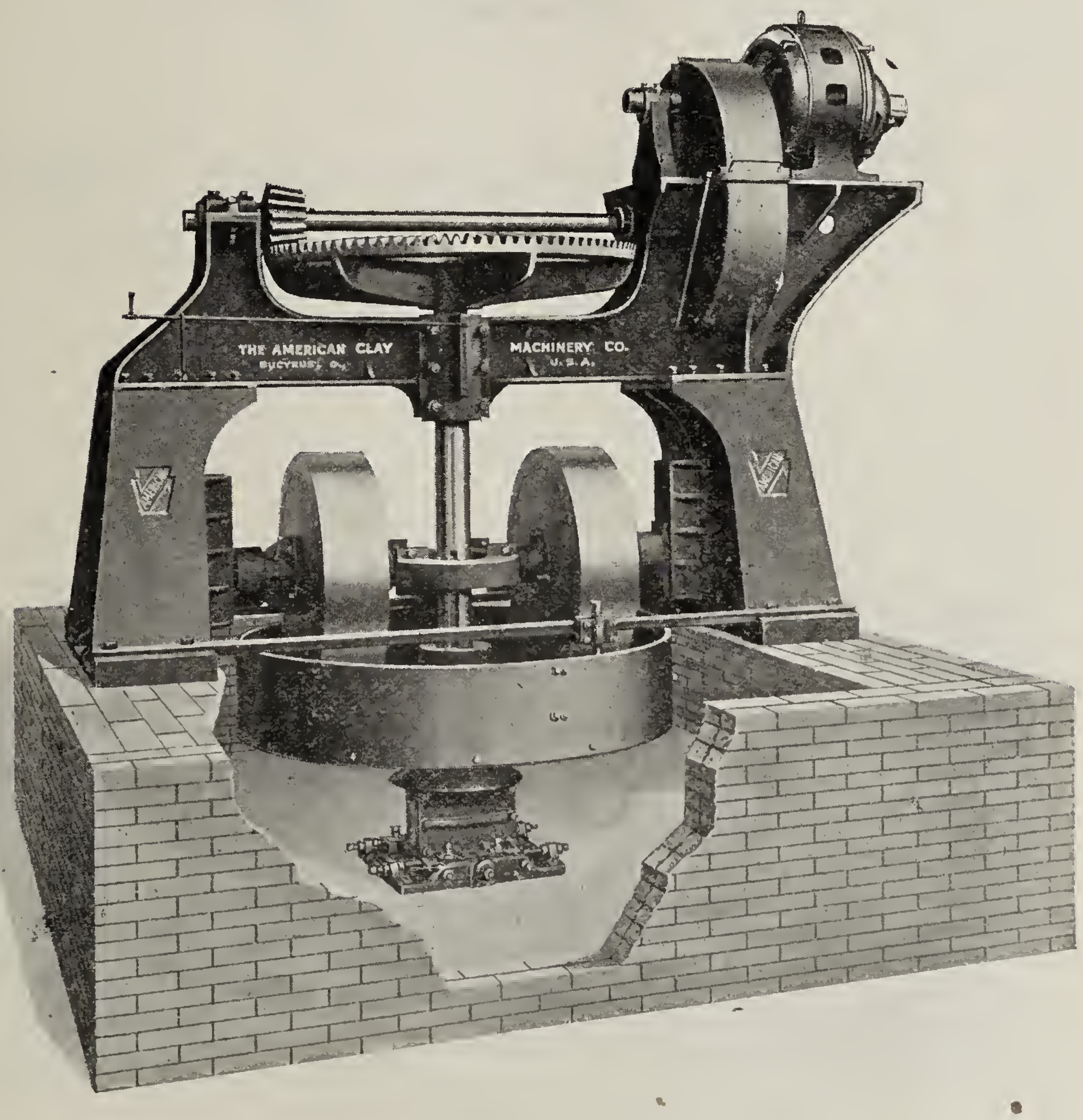
Get printed matter on the No. 292 Press. Its free.

We also build a complete line of Clay Working Machinery. Our new catalogue will be sent on request.

American
No. 335
Wet Pan.

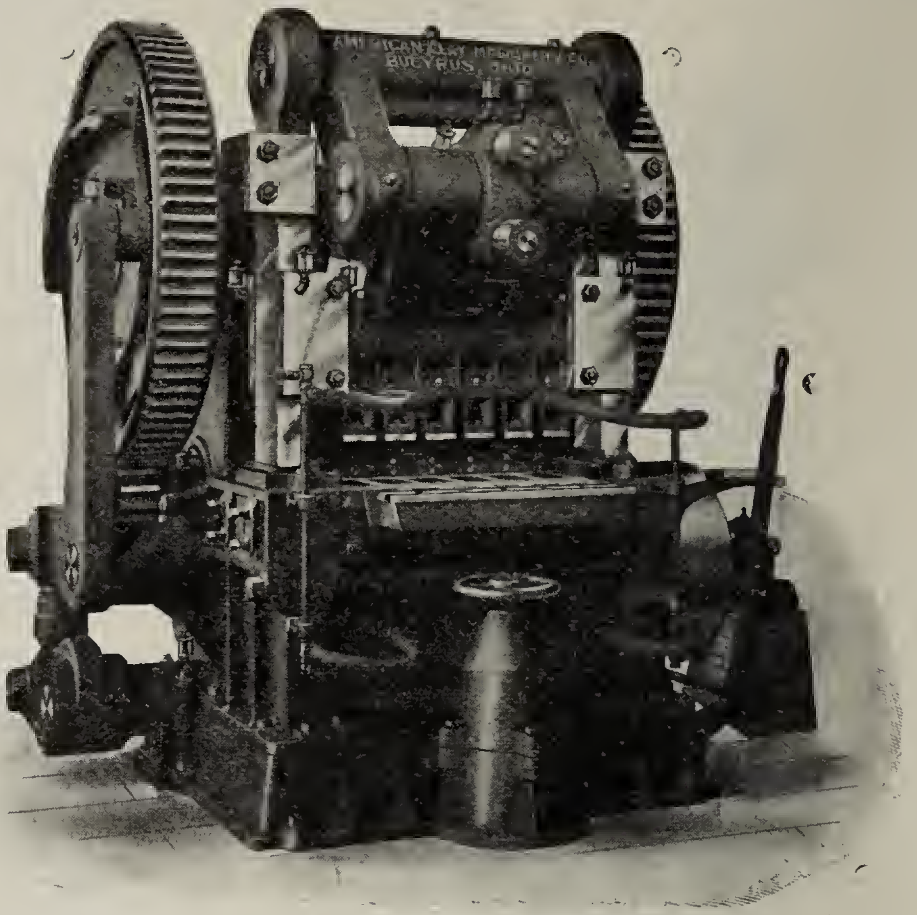
Where it is desired to have the sides of your pan setting take the place of full length side frames we can recommend our No. 335 Pan. It is a splendid representative of our High Quality Line of Clay Working Machinery. Let us send you a bulletin giving details.

THE AMERICAN CLAY
MACHINERY CO.
Bucyrus, Ohio.



American No. 335 Wet Pan

American No. 599 Press



American No. 599 Six-Mold Dry Press Brick Machine

This No. 599 American Dry Press is probably the most ample machine of its kind on the market.

It is built with a view to quality and satisfactory operation.

In design, material and workmanship there is nothing left undone which would add to the quality of the 599. The complete detail is given in our 599 Bulletin. Send for it. We build everything required in a clay plant.

The American Clay Machinery Co.
Bucyrus, Ohio

Unloading and American Hardening Cylinder

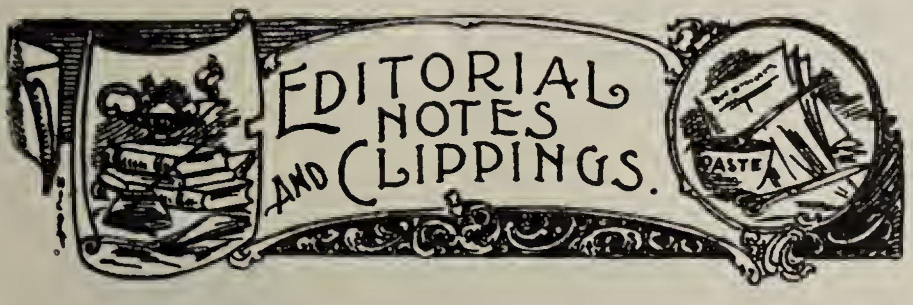
SAND LIME BRICK MACHINERY.

At our Willoughby factory we build a comline of dependable Sand-Lime brick machinery.

Hardening Cylinders Presses, Grinding Pans, Mixers, Cars etc.

Send for our Sand-Lime catalog.

The American Clay Machinery Co.
Willoughby, Ohio.



EDITORIAL NOTES AND CLIPPINGS.

Frank Mohr, of Columbus, Ohio, is at the head of a company which is starting a new brickmaking plant at McArthur, Ohio.

The Hamilton-Toronto Sewer Pipe Co., will build an addition to its plant at Hamilton, Ontario, Canada, that will cost in the neighborhood of $25,000.

The Ashland Fire Brick Company, of Ashland, Ky., has opened a branch office at 29 South LaSalle street, of which S. P. Adams is manager.

The United States Potash & Brick Corporation has been incorporated at Roanoke, Va., by H. O. Soangler and others. The capital stock of the company is given at $1,000,000.

The Somers Brick Company of Atlantic City, N, J., has started up its plant at Bakersville, N. J., which has been idle for some time. The plant has a capacity of 100,000 brick per day.

The Thornton Fire Brick Co., of Clarksburg, W. Va., and the Hammond Brick Comnany of Fairmont, W. Va., have booked the contract for all of the paving to be done in Harrison county for 1919.

The Molalla Fire Clay Company will build a pottery at Molalla, Ore. Thirty acres of clay land have been donated the company by the town of Mollala. B. S. Sincheiemer is secretary of the concern.

The Harbison-Walker Refractories Co., will make a number of improvements and extensions at their Fairfield, Ala., plant, which will include the erection of six kilns. When completed the capacity of the plant will be increased two-thirds.

The capital stock of the Bonnot Manufacturing Co., of Canton, Ohio, one of the largest clayworking machinery manufacturers in the country, has been increased from $500,000 to $1,000,000. A. A. Oldham is secretary and treasurer of the company.

R. H. MacCullum is at the head of a company which has purchased the plant of the Hazleton Brick Company, of Wilkesbarre, Pa. The latter company was forced out of business by the war. The new company will at once put the plant in shape for operation.

Conococheague Brick Company has resumed operations at their plant at Williamsport, Md., with a full force of men. Last year the production was less than 50 per cent. of the usual output. The plant has a capacity of 82,000 brick a day and is owned and operated by Victor Cushwa & Sons.

According to announcement by the officials of the Illinois Brick Company, of Chicago, after a long period of non-production, two of the company's' plants, that at Dolton and Purington, Ill., are to be started April 1, and it is expected most of the old employes of the company will soon be at work full time.

Prospects for business in the Northwest is opening up in good shape, according to the Red River Valley Corporation, with head offices at Grand Forks, N. Dak. This concern is one of the largest clayworking concerns in that section, and it is anticipated they will soon be running full handed again. A. I. Hunter is president of the company.

The plant of the Consolidated Brick Company, Horseheads, N. Y., has resumed the making of brick with a full force. Following the closing down of the plant last fall President R. G. Eisenhart put a large force of men at work making extensive repairs and improvements at the plant and this work was continued all winter, the men receiving 40 cents an hour. When the plant was again put in operation after the government restrictions had been removed, Mr. Eisenhart increased the wage scale, which now is graduated from $3.60 to $4.25 a day, according to the workman's ability. Mr. Eisenhart states that just at the present time there is practically no market for brick, but he believes that conditions will soon change and he is going to make brick and pile them up.

The Cleveland Clay Products Company, of Cleveland, Ohio, has been incorporated with $10,000 capital stock. L. A. Krueger and others are interested.

Application will be made by Lloyd R. Wilson, Ralph W. Touzeau and Jay P. Felt, March 31, 1919, for charter for intended corporation to be called Cameron (Pa.) Clay Products Co.

Frank Smith, of Chicago, has moved to Rushville, Ill., where he will have management of the Nicholson Bros. Tile Company, filling the place made vacant by the death of James Nicholson.

The Climax Clay Co., of Bessemer City, N. C., has been incorporated with $50,000 capital stock. J. A. Smith, of Bessemer City, is at the head of the concern, the chief object of which is to mine clay.

The W. E. Dowlin Brick Company, at Billings, Mont., is one of the prosperous manufacturing concerns of that section. The capacity is close to 50,000 per day, with a good demand, for the brick are shipped to many near-by towns.

The plant of the Terre Haute Vitrified Brick Co., Terre Haute, Ind., has been started up full speed. J. M. Hoskins, the genial manager, has a contract on hand for 2,500,000 brick for road work in Indiana and another for 500,000 for the streets of Paris, Ill.

Daniel De Noyelles, one of the oldest brick manufacturers in the Hudson River district, died at his home in Haverstraw March 11, at the advanced age of eighty-three years. He is survived by two sons, who were interested with him in the business, and two sons.

The final report of J. J. Netterville, receiver for the Indiana Brick Company of Anderson, Ind., has been filed, and the creditors will probably be paid seventy cents on the dollar, which is better than most of them anticipated at the time the business went into the receiver's hands.

Work on the new plant of the North American Brick & Clay Products Company at Mansfield, Ohio, is progressing favorably. At a recent meeting of the board of directors the following officers were elected: W. G. Cappeller, president; J. B. Lindley, vice president and treasurer, and W. W. Sharp, secretary.

Claud J. Townsley, owner of the Idaville Tile Factory, Idaville, Ind., has had a number of tests made of his clay with the result that he will build a plant for the manufacture of flower pots, which will operate in connection with the drain tile plant. Later on he expects to make a better grade of ware as well as flower pots.

Samuel H. Tuttle, of Hickman, Ky., writes that a company is being formed to erect a plant at that place for the manufacture of press brick, hollow building tile and drain tile. The clay has been tested with very satisfactory results, and the company will soon be in shape to consider machinery and equipment. There is also a good deposit of pottery clay and a pottery plant may be installed later.

At a recent meeting of the stockholders of the Idaho Fire Brick Company, Troy, Idaho, reports were read showing that the company is in good shape, financially and otherwise. Nineteen hundred eighteen was one of the best years in the history of the concern. Credit was given to J. B. Watson, the general manager of the plant, for the high quality of the product made. The following officers were elected: President, W. M. Duthie; vice president, August Johnson; Homer Dinsmore, secretary and treasurer. Mr. Watson will continue as superintendent and general manager.

A deal whereby the plant of the Ottawa (Ill.) Fireproofing Company takes over the plant of the Terra Cotta Tile Company at Ottawa, was completed some weeks since, and the factory, which had been idle for some time, will soon be operating full time. W. A. Herrick, of the Herrick Clay Manufacturing Co., who will be president of the new company, is a man of wide experience in this line, having been in the clay business practically all his life. W. J. Hammett, of the National Fireproofing Co., will be the vice president and general manager. The company has capital stock to the amount of $50,000, all of which is paid up. Fireproofing for building purposes will be manufactured. The company will start immediately to build two or three new kilns, and put the plant in first-class shape for the season's run.

The plant of the Troy Brick Works, Troy, N. Y., which has been closed down since last July, was started up again early in the month. Gilbert P. Williams is president of the concern.

The Manitowoc Clay Co., at Manitowoc, Wis., will enlarge its plant and install additional equipment for the manufacture of tile, for which the clay at the plant is said to be well adapted. Elmer Leach is president of the company and Ed-

The new plant of the Wellsville Fire Brick Co., at Wellsville, Mo., is now in operation, turning out finished products. The first kiln which was opened March 15 was all that the management anticipated.

The Jova Brick Company, Newburgh, N. Y., has received what is thought to be the first inquiry for common brick to be used for reconstruction purposes in Belgium. The firm was asked to submit bids on 1,000,000, delivered at a Belgian port.

Reports from various cities in Wisconsin indicate that the clay products manufacturers are looking forward with confidence towards a busy season. With the war now a matter of history and the restrictions on building operations removed, industrial activities seem to be looming up strongly. The Acme Brick Company at Barton is making arrangements to handle a large volume of business and officials expect to operate the plant to full capacity.

The heads of the McKnight Fire Brick Company recently announced the beginning of construction work on their new plant at Porterville, Cal., and they expect to have the factory operating within sixty days. The date of the delivery of machinery has not been definitely settled as yet, but lumber for use in the first building of the plant is now on the ground, and it is expected that the machinery will arrive in time for installation.

A meeting of the stockholders of the Reynoldsville Brick & Tile Co., Reynoldsville, Pa., was held a few weeks since at which time Dr. John H. Murray, of Punxsutawney, was elected president; Charles G. O'Donnel, vice president; treasurer Henry Herpel; secretary, Mrs. Mary B. Murray; general manager, Walter I. Murray. Dr. Murray was the first president of the company many years ago when the company was first organized, and was succeeded by Mr. Clyde Murray, who was a victim of influenza last fall, and who had filled the office of both president and general manager for a number of years. Walter I. Murray, who worked under Clyde for four yers, has been appointed manager of the company's plant.

The sixteenth annual statement of the Harbison-Walker Refractories Company will reach stockholders today. The statement is for fifteen months, covering the fiscal period from September 30, 1917, to December 31, 1918. For the period, after charges, there remains net profits of $5,504,956.76, and after dividends on both classes of stock there was carried to surplus account $2,354,956.76. Total surplus at the end of the fiscal year was $12,372,031.99. In the report, President H. W. Croft states: "During the above period three wage advances were made, making a total of seven advances in the years 1916, 1917 and 1918, which combined amounted to over 100 per cent. These wage advances were not all accompanied by corresponding advances in the selling price of brick, the last general advance in brick prices being in July, 1917. The conditions under which we operated, due to shortage of labor, car supply, coal and other material, were much less favorable than the preceding year, resulting in a considerably decreased output."

An important contract has been closed between the Los Angeles (Cali.) Pressed Brick Co. and the United States Government for about 3,000,000 bricks of larsite, the "floating brick," invented by Gus Larson, superintendent of the Pressed Brick Company, for use in the construction of four ships, which are to be 7,500-ton oil tankers. This vast order will be the means of putting larsite on the market in commercial quantities, as it can be used for many other purposes besides ship building. The clay for larsite is obtained in the fields of the Alberhill Coal & Clay Company, at Alberhill, Riverside county. The finished product is to be inspected for the government by James R. Shields, engineer of the United States Shipping Board Emergency Fleet Corporation. Two of the ships are to be "poured" at the yards of the Marine Construction Company at San Diego, and the other two by the San Francisco Shipbuilding Company in their Oakland yards. About eighteen kilns will be operated by the Los Angeles Pressed Brick Company in order to turn the product out on the time guaranteed.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.

IT MUST BE ADMITTED that a long trying period for the brick and clay dealers has been experienced, but in the opinion of the majority of the trade, the end of inactivity is now in sight, with every indication of a most prosperous renaissance within the next few months. The recent drop in lumber and the reduction in the price of common brick has succeeded in encouraging the most venturesome of the builders, who until now, have been holding back in hopes of just such a decline. But lumber dealers, as well as those interested in the brick and clay industry on the Pacific Coast, seem firm in their conviction that the limit has been reached in the matter of reductions in material costs, at least until a radical change is effected in labor conditions and living expenses.

The housing proposition in this city has become a matter of concern to the various building trades, it being next to impossible for new tenants to secure accommodations. While a number of old flats and apartment houses have been renovated in an effort to meet the demands of the public, the city is badly in need of new renting possibilities in the residence districts as well as the downtown business sections.

A recent announcement of plans calling for an expenditure of $1,059,000 for school construction, was made by Geo. E. Gallagher, president of the Board of Education. March 5, it is understood, will mark the beginning of the building program, which will give the city four new schools, including a $500,000 high school, three six-room additions and a remodeled building with modern equipment. Bids will be called for immediately on work for the new Park-Presidio school, estimated to cost about $130,000.

The latest report of Fletcher Hamilton, state mineralogist, shows that the clay industry has increased to some extent during the actual war period, a considerable amount of clay products being used in the cantonments, etc. According to his statement, 166,298 tons of pottery clay were produced in 1917 in California, amounting to a value of $154,602 at the pits. The total value of the products manufactured from this output reached a sum of $2,108,160. The sum of $2,532,721 represented the amount of brick and building tile materials manufactured during the same year.

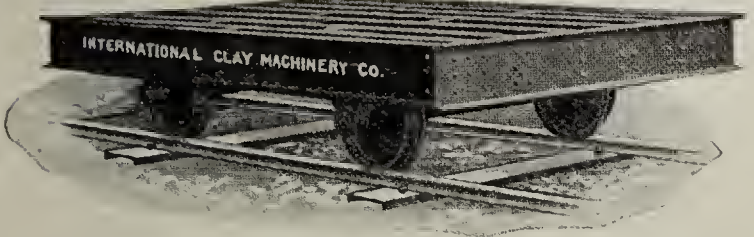
The growth of the clay industry in southern California has been very rapid. At the present time there are more than twenty plants in operation in the Alberhill district, utilizing twelve different varieties of clay products. Besides the ship contract, a shipment of 140 carloads of hollow tile for use in the government hospital at Fort Whipple, Ariz., has been ordered along with about $500,000 worth of tile for the construction of nine permanent buildings at North Island. The average yearly output of the Los Angeles Pressed Brick Company is said to be between 60,000 and 70,000 tons.

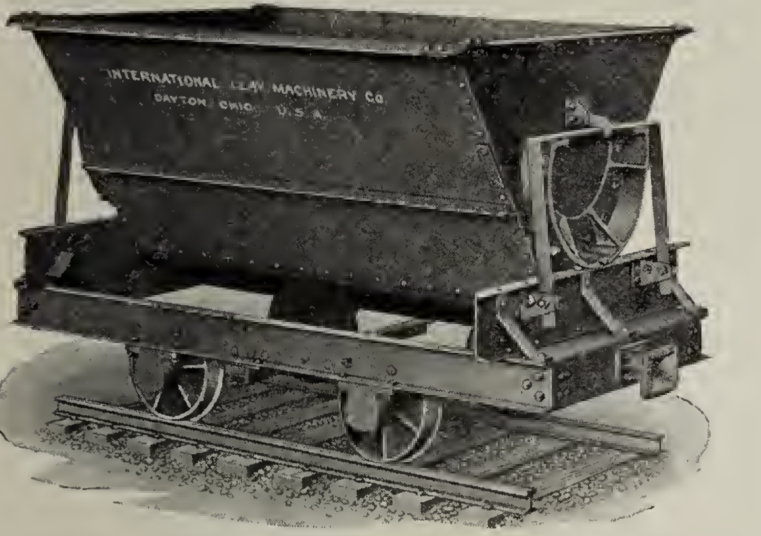
Plans for remodeling a five-story brick hotel into modern apartments, are in the hands of D. J. Patterson, of San Francisco. The estimated cost of the changes is $20,000.

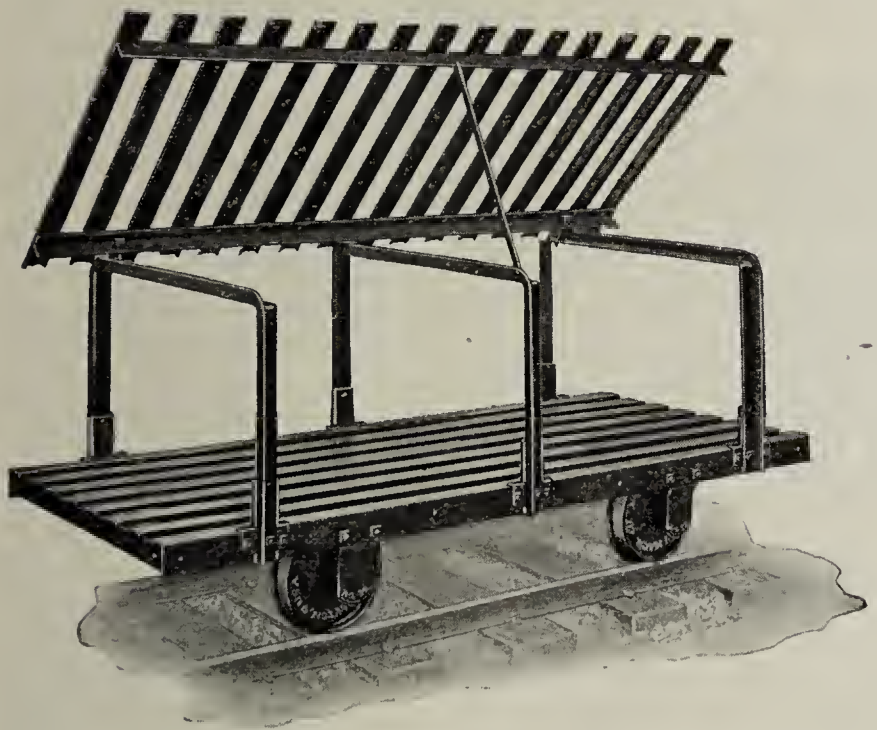
At a cost of $90,000, a new brick school building is to be erected at East Seventh and Wilson streets, Los Angeles, Cal. Allison & Allison, of that city, are the architects. The plans call for twelve regular class rooms, besides numerous special departments.

Quantities of tile are to be used in the construction of the new hospital which is going up in Oroville, Cal., in the near future. The Misses Curran, owners of the present Oroville Hospital, are to finance the proposition.

San Francisco. SUNSET.


INTERNATIONAL CLAY MACHINERY CO.





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Didier-March

J. B. Owens

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RAILROAD TUNNEL KILNS

Under Severe Temperature Conditions

The Workmanship That Withstands Such A Test Is The Workmanship You Want In The Cars You Buy.

Write For New Car Catalogue.

International Clay Machinery Co.

DAYTON, OHIO

Heat Distribution

is improved by insulating kilns with **SIL-O-CEL.**

Suitable thicknesses of **SIL-O-CEL** Insulating Brick retain 75 per cent of the heat that would be lost by radiation from uninsulated kilns.

In addition kilns insulated with

SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

operate under more uniform temperature conditions and increase the output of perfect ware.

Our Engineering Department will advise on the proper application of **SIL-O-CEL** to either old or new kilns.

Bulletin S-71 gives detailed information and will be sent on request.

CELITE PRODUCTS CO.,

NEW YORK, 11 Broadway.
PITTSBURGH, Oliver Building.
CHICAGO, Monadnock Bldg.
LOS ANGELES. Van Nuys Bldg.
SAN FRANCISCO, Monadnock Bldg.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN NEWS.

THERE is little doubt in the minds of those who are associated with the clay products industry in Wisconsin that once the post-war conditions stabilize and prospective plans materialize, the coming season will be one of the greatest ever experienced. This applies not only to the manufacturers and jobbers of clay building materials, but also to paving block, drain tile and other products for which the demand and use were materially reduced during the war. This section of the country is now experiencing the most severe weather of the entire winter, which on the whole has been mild. Plans are now in progress, however, to boom building and construction work during the coming months and prospects are exceedingly bright. The fact that construction work along peace lines was greatly hindered during the past two years is ample reason why a great deal of building which has been held in abeyance must now be started or completed. One of the things of which there is a great need is the construction of homes and apartment buildings. Both in Milwaukee and other Wisconsin manufacturing towns plans are under way for the resumption of this type of construction. Building permits already show a gratifying increase over last year in all types of construction.

Many interesting and important matters of interest to the trade were discussed at the recent convention in Milwaukee of the National Association of Builders' Exchanges. While it was admitted that conditions had not improved materially since the cessation of hostilities last November, it was pointed out that the period since then is the usual dull time and that the time elapsing has been too short to bring about a marked change from such abnormal conditions which have been existing since the beginning of the war. The general opinion expressed was most optimistic as to the future of the building activities in this country. Because of the critical period which the building industry is passing through the convention was one of the most important ever held. In the discussion of questions of readjustment and reconstruction many interesting points were brought out. It seemed to be a unanimous opinion that while many are inclined to blame high prices of materials for the existing stagnation in new construction, it must not be forgotten that wages are at the highest point in history and doubtless this is the greater deterrent. The convention sanctioned the movements on foot that have as their object the promotion of new construction of all kinds without delay, to keep workers employed and contractors busy and provide opportunity for those dealing in building materials to do business as usual.

That the hopefulness of the building industry is based on actualities, even though the revival of activities has not come forth in a boom at this time, can best be attested to by the work in the hands of architects. Among the important construction which promises to materialize in Milwaukee this season are a number of industrial improvements. The R. A. Johnston Co. contemplates expending from $500,000 to $750,000 on a new factory and power house on National avenue, between 34th and 35th avenues. This is to be a seven-story brick structure, 135 by 310 feet in size, on which work is to be started this spring. Another large industrial structure now being planned is a three-story factory building for the National Enameling and Stamping Co., at St. Paul avenue and 9th street, to cost about $200,000. It will be of brick with concrete skeleton, 115 by 220 feet. The brick and steel factory building of the Metro-Nite Co., Hammond and Hopkins streets, will be 80 by 130 feet. Others include a two-story factory for the

(Continued on page 422.)

When The U S Gov't Through Their Bureau of Standards

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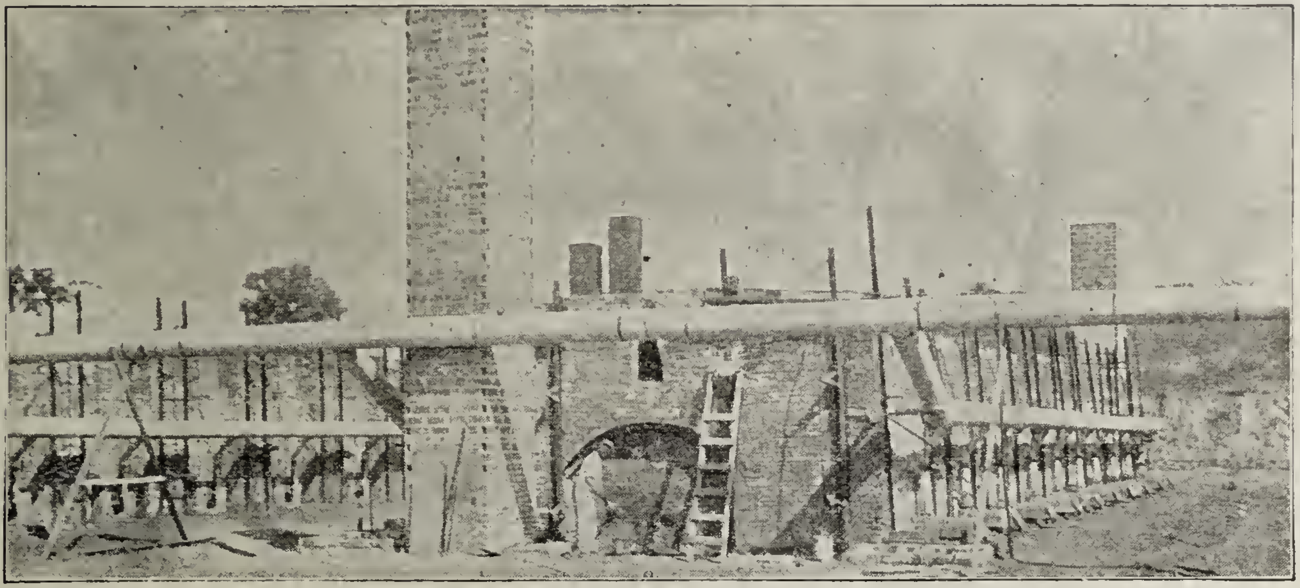

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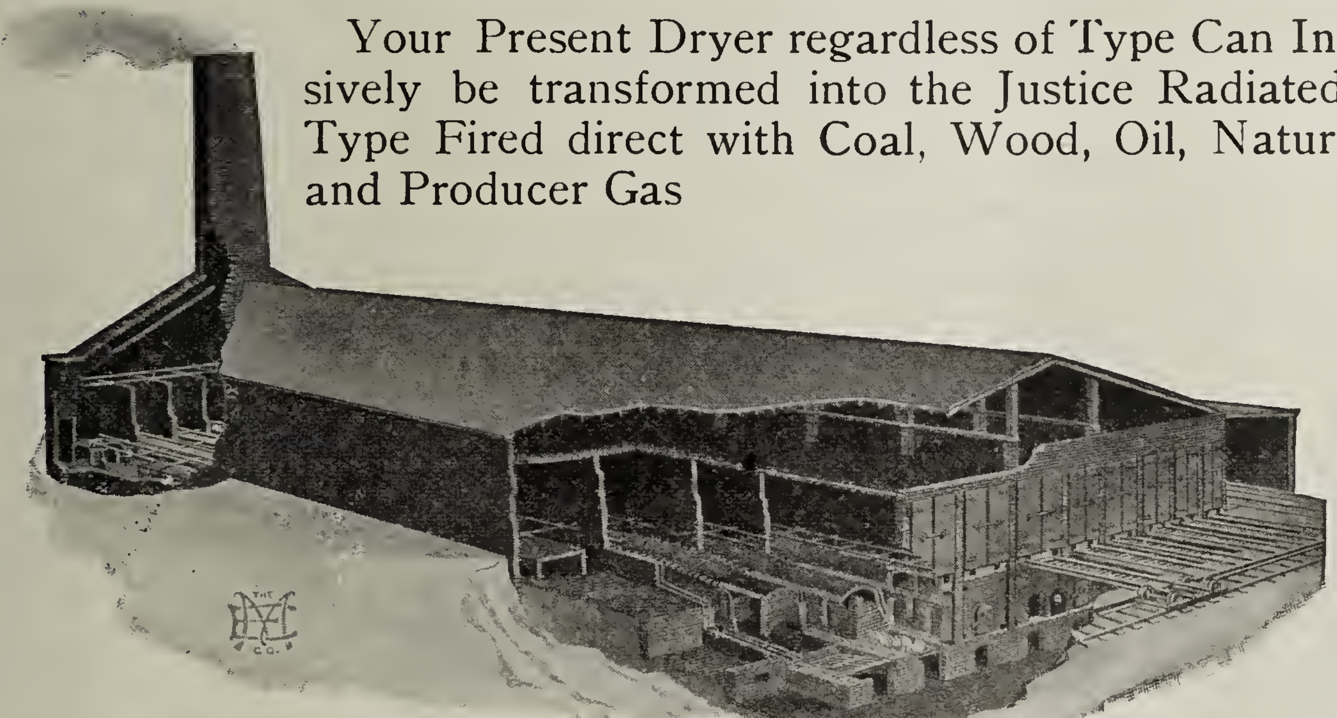

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12 They give years of service without cost for upkeep or repair.

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Dayton, Ohio, U. S. A.

ATTENTION!

Clay-workers of the Central States

The Forty-First annual meeting of the ILLINOIS CLAY MANUFACTURERS' ASSOCIATION will be held at the La Salle Hotel, Chicago, April 9 and 10, 1919.

The following organizations also will meet with the Association:

Chicago Section, American Ceramic Society

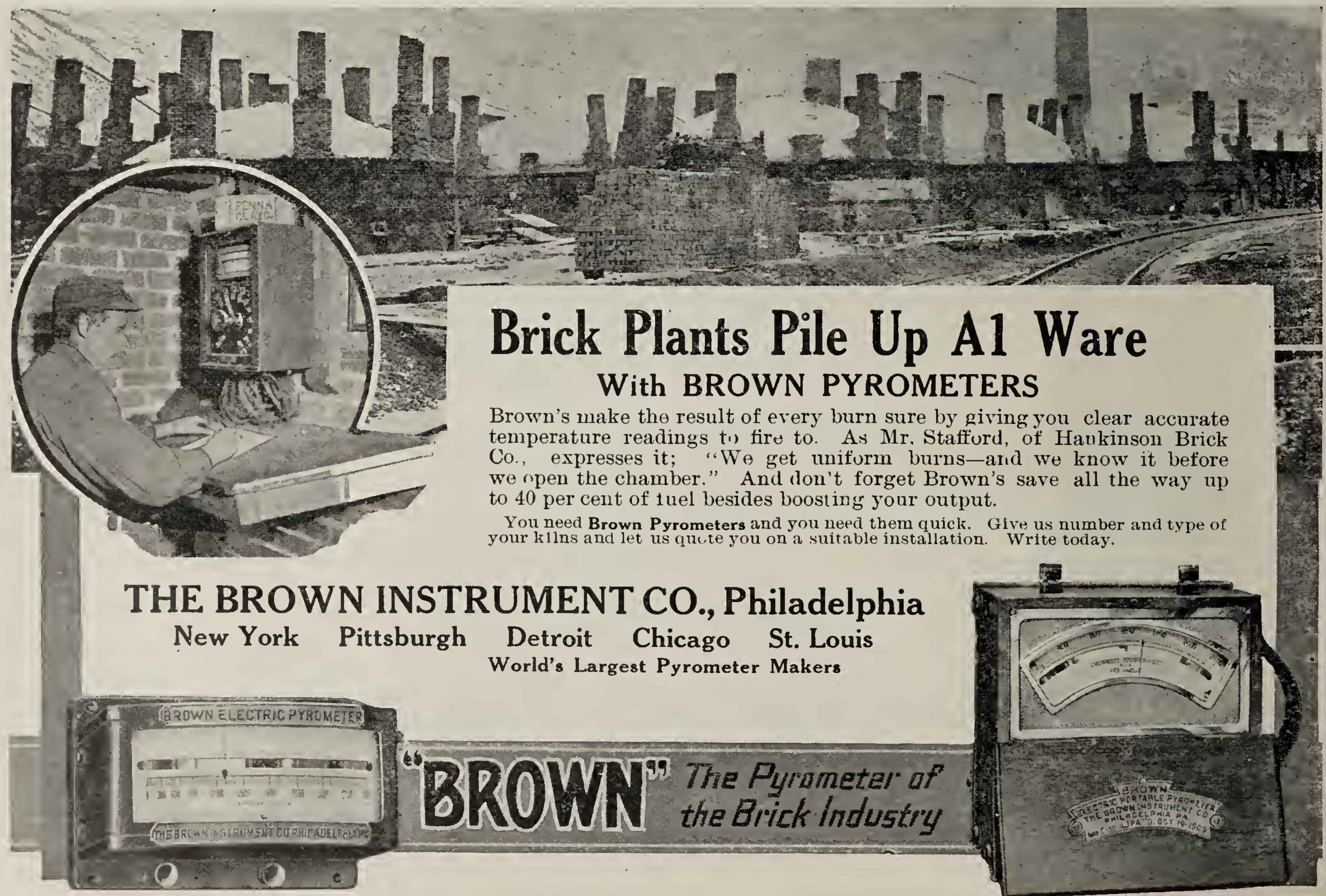
Indiana Brick Manufacturers' Association

Illinois Drain Tile Manufacturers' Association

Illinois Paving Brick Manufacturers' Association

Illinois-Indiana Division of the American Face Brick Association.

Make hotel reservations promptly.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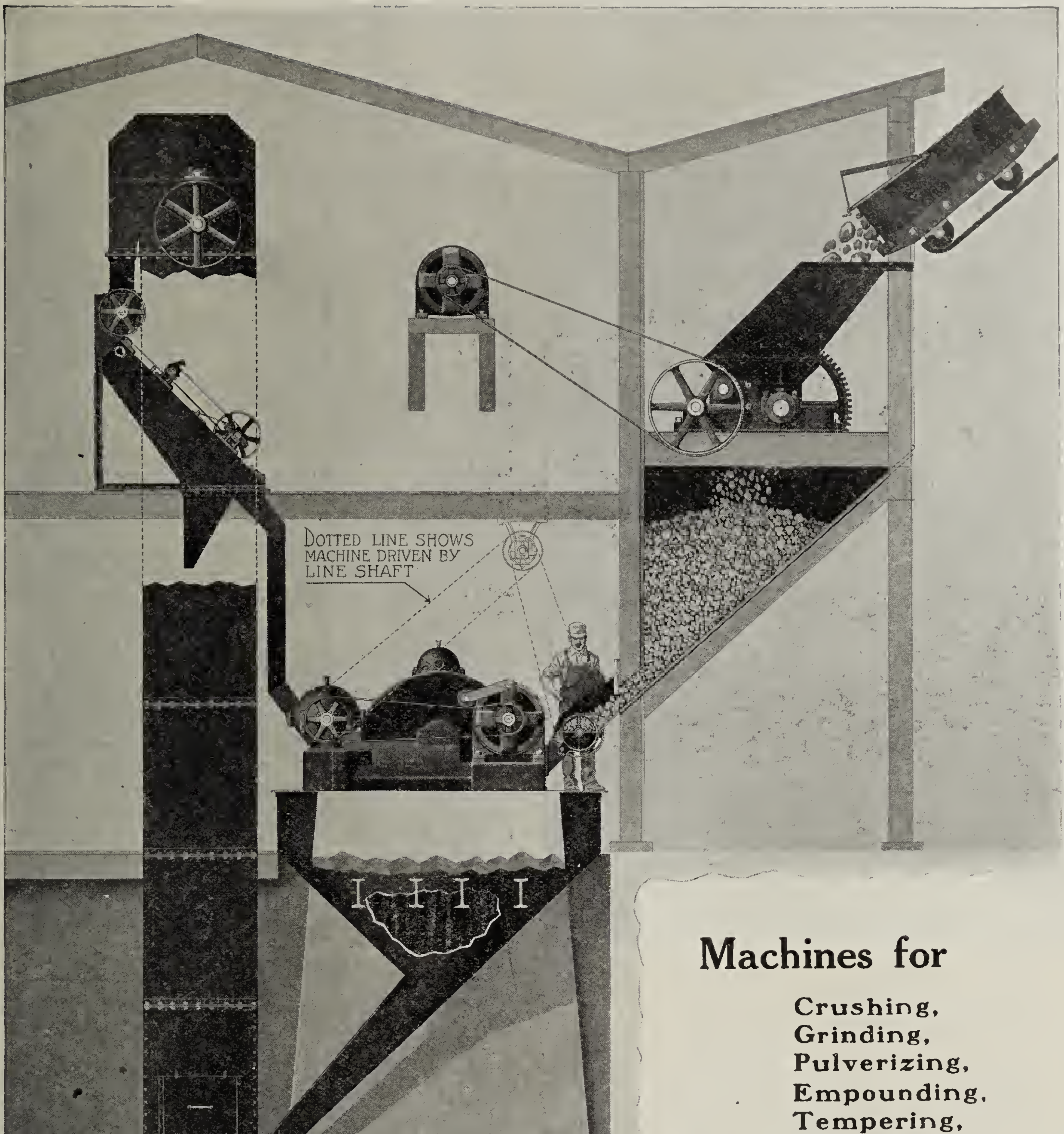

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Automatic Soft
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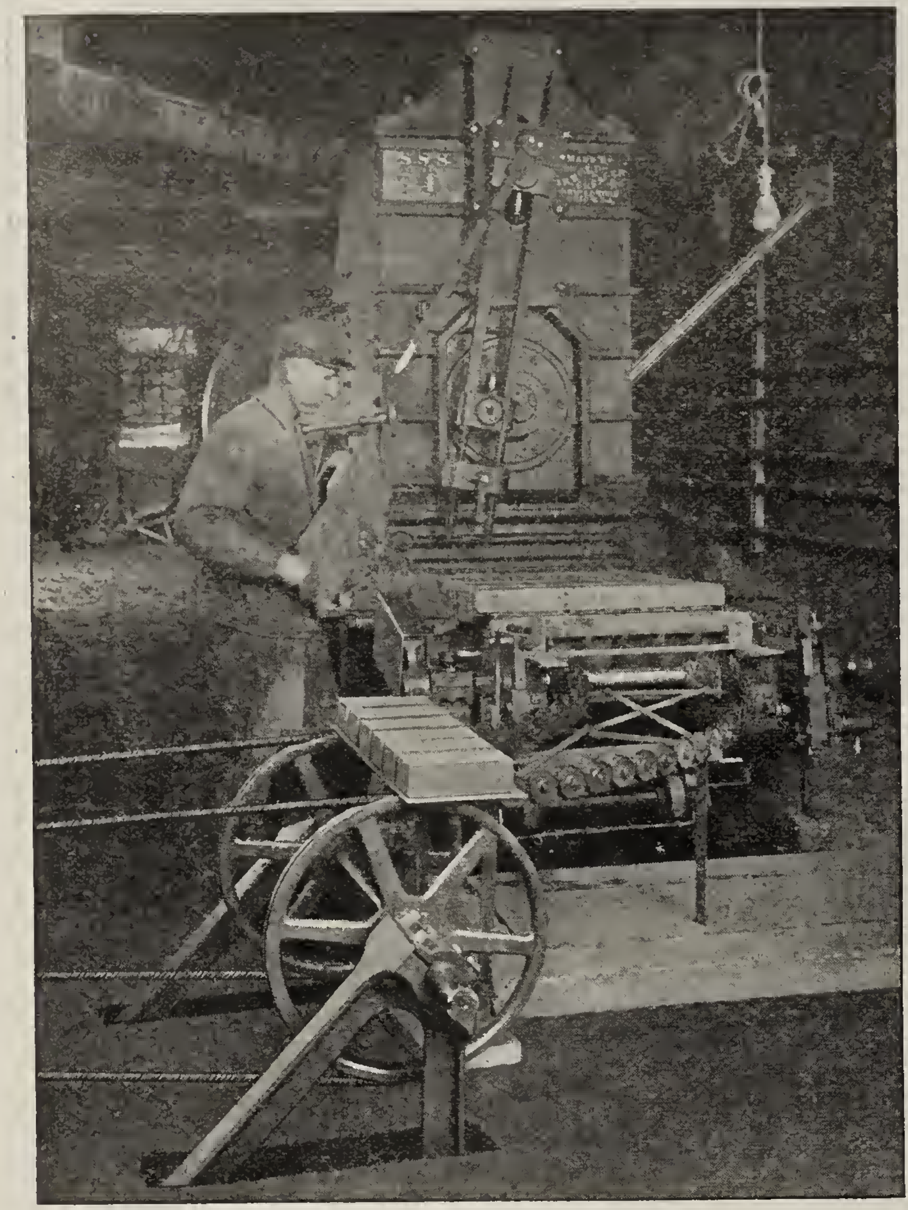

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Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

Philip Schwab Co., and a brick addition to the Koehring Machine Co.

The drain tile business will meet with improvement this season if plans now under way materialize. Agricultural interests are active in pushing drainage projects throughout the state to increase acreage of available farm lands. A number of cities are also working on plans for installing sewerage systems and extensions.

BADGER.

Written for The Clay-Worker.

EVANSVILLE AND SOUTHERN INDIANA BRICK AND BUILDING NEWS.

Brick manufacturers in Evansville and other southern Indiana towns say that business prospects now are more promising than at any time since the signing of the armistice and the ending of the great European war and they are looking for a very nice trade after the Fifth Liberty Loan campaign has been "put over" in April. It is not expected that trade will show any great improvement until after this loan campaign, but after that it is the general opinion of brick manufacturers and building material men, as well as contractors at Evansville and other towns in this section that building operations are going to take on new life and that things will hum the balance of the year. Considerable building is being planned right now for southern Indiana towns.

The Louisville and Nashville Railroad Co., has let the contract for the building of a new brick roundhouse at Howell, a suburb of Evansville, and the work on this improvement will start at once and will be pushed to completion. The contract has been let to the Scarbrough-Davis Co., of Evansville, and Evansville brick will be used in its construction. There will be room in the new roundhouse for seventeen of the monster new engines that the United States Railroad Administration recently turned over to the Louisville and Nashville Railroad Co. The roundhouse will cost in the neighborhood of $125,000. Work on the new brick plant of the Ideal Dairy Co. at Evansville that is being constructed at a cost of over $25,000 is being pushed. The brick for this job was furnished by the Standard Brick Manufacturing Co., of Evansville. Several new brick school houses and new churches have been planned for the towns in southern Indiana, southern Illinois and western and northern Ketucky within a radius of seventy-five miles of Evansville.

Ground has been broken for the new brick addition to the plant of the Wertz-Klamer Furniture Co., at Evansville; this improvement will be finished within a few months and the company will employ a larger number of men after the addition has been completed. The Grand opera house at Evansville will be re-modeled and re-built this summer at a cost of about $35,000 and it is expected the contract for this improvement will be let within a short time, as the plans have been drawn. Bids for a new brick addition for the Faultless Caster Co., at Evansville, have been opened and the addition will be erected at once. Since the first of the year a dozen or two frame houses have been started in Evansville and the brick for the foundations of these dwellings was furnished by the Standard Brick Manufacturing Co. In the opinion of building men, things were never so promising for this time of the year for a resumption of building. One of the biggest improvements in southern Indiana this year will be the new court house of Spencer county at Rockport, Ind., forty miles east of Evansville. The county commissioners let the contract on Monday, March 3rd, to English Bros., of Champaign, Ill., they being the lowest bidders at $149,541.84. Evansville brick manufacturers expect to furnish the brick for the Rockport court house.

The United States federal government will erect a $15,000 postoffice building at Mt. Vernon, Ind., this year and another government building to cost $200,000 will be built at French Lick. Both of these government buildings will be constructed of brick and stone. The contract was let a few days ago for the new government postoffice building at Mt. Carmel, Ill. railroad at Dawson Springs, Ky., has just been let. This building will be erected at once and brick will be used. The government also will build a large brick addition to the United States marine hospital in Evansville to take care of wounded soldiers who are brought back from overseas.

All the large plants of the Standard Brick Manufacturing Co. at Evansville are closed down at the present time and John Andres, the secretary and treasurer of the company, says he does not know when they will resume operations. He reports that the company has a good stock of brick on hand at this time. Only one brick plant in southern Indiana is being operated at the present time, that being the Huntingburg Pressed Brick Co. at Huntingburg, Ind., that is running full time with a good many large orders on hand to fill. Mr. Carlisle, of the Albion Shale Brick Co. at Albion, Ill., who was a business visitor in Evansville a few days ago reported the company running its plant on full time. The demand for drain tile in the Southern Indiana field is fairly good. The Standard Brick Manufacturing Co. operated their tile plants about one third time during the past year and most of this tile turned out by the company has been sold.

John Andres, secretary and treasurer of the Standard Brick Manufacturing Co., and president of the Evansville Rotary Club, was at Indianapolis a few weeks ago attending the state Rotarian meeting and he reports a good time.

Evansville is rapidly forging to the front as a pottery center and at the present day many people find daily employment in the three large plants that are located in Evansville. The largest of the three potteries in Evansville is the Crown Company that employs over 300 workmen. This company has operated its plant for twenty years and specializes in dinnerware, although plumbers' earthenware also is made. Its dinnerware in the medium grades finds a large sale in the western states.

The board of public works of Evansville during the past three months has let the contracts for the building of a number of improved streets in that city and some of the streets will be constructed of brick.' Mayor Benjamin Bosse, in his annual message to the city council a short time ago urged many public improvements during the present year in order to keep the wheels of business moving and also to give employment to many of the soldiers who are returning from overseas. At Madisonville, Ky., a few miles south of Evansville, several miles of improved streets will be built during the present year.

The county commissioners of Vanderburg county, sitting at Evansville, are having many of the roads of that county improved and in a short time Vanderburg county's share of the Dixie Bee Line Highway will have been finished. This highway will extend from Danville, Ill., to Adams, Tenn., where it will connect with the big Dixie Highway. Mayor Benjamin Bosse, of Evansville is the president of the Dixie Bee Line Highway Association and it is expected that some time during the coming summer he will order an inspection of the line all the way from Danville to Adams. The various county vice-presidents from Illinois, Indiana and Kentucky will be asked to accompany Mayor Bosse on the tour of inspection. The Dixie Bee Line Highway Association was organized about two years ago and several large brick manufacturers of the tri-state territory are members of the organization.

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I'm "On-the-Job" *Gandy*, the neverslip—never slack—origina stitched cotton duck belt.

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No live steam. No direct firing.

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Applies to all types of kilns and will save HALF in your cost of burning.

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Brookville, Pennsylvania

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, APRIL, 1919. No. 5.

GOING UP! A FLIGHT, Having a Commercial Aspect, an Order for Building Brick Delivered By The Air Route. Demonstrating the Ability of Skilled Aviators to Deliver Messages at Given Points Without Landing.

CAN THE FLYING MACHINE be commercialized or adapted to needs of trade and traffic? An incident that seems to answer the above question affirmatively occurred early in April, when Major Matt L. King, for some time past acting supervisor, Northern District Air Service, with headquarters at Indianapolis, made a flight from the aviation field at the Speedway, Indianapolis, to Chanute field, Rantoul, Ill., and en transit delivered a message to the Western Brick Company at Danville, Ill. Major King is an experienced aviator and an enthusiast in all matters pertaining to aviation and believes that in the very near future the air ship will be a practical and common means of communication. He insists that the up-to-date air ship in the hands of experienced men is both safe and dependable, and will soon be in common use.

Major Matt L. King, Acting Supervisor, Northern District Air Service, U. S. A., Indianapolis.

To demonstrate that a message could be delivered at a given point in the course of an ordinary flight, he consented to deliver a message from A. E. Davis, manager of the Indianapolis office of the Western Brick Company, to the factory at Danville, Ill. It so happened that a new theater is in course of construction in Indianapolis, and a rush order had been given for brick which were needed without delay. A bona fide order for brick was placed in an ordinary tobacco pouch, weighted with a few ounces of sand, to which was attached a yard of red ribbon, so that it might readily be seen when dropped at the desired point. With this message tucked in his coat pocket, Major King left the Indianapolis Speedway field at 12 o'clock noon, and an hour later, or, to be exact, at five minutes after 1:00, the message was received at the factory. Frank W. Butterworth, president and general manager of the Western Brick Company, acknowledged it by wire, the latter reaching the Indianapolis office some hours later. That is, it took twice as long to reach Indianapolis by wire as it had for Major King to make the flight from that city to Danville.

The trip was made under unfavorable conditions.

While the sky was clear, there was a strong, fitful wind, which at times assumed the character of a gale, which made flying seem dangerous to the inexperienced onlooker. However, the air men seemed unconcerned and proceeded to warm up the machine, which was one of Uncle Sam's latest types, equipped with a Liberty motor and having a speed of over one hundred miles per hour. As will be seen by the accompanying photograph, it is in reality an inanimate bird of splendid dimensions; its wings measure 37 feet over all from tip to tip. Major King's orders required a non-stop flight from Indianapolis to Rantoul, a distance of 150 miles. Danville is almost directly in the line of travel, some ninety miles west of Indianapolis. Major King would have made the trip in much less time but for the strong head wind with which he had to contend. On sighting Danville he slowed down and descended until he was able to distinguish the brick plant, the tall stacks and groups of kilns being easily discernible. The message was dropped within a few feet of the factory office, the flyers again ascended and made a bee-line for Rantoul, where they landed a half hour later.

Imbued with the spirit of the adventure, the workmen at the brick plant got busy, and before five that afternoon the first car of brick required to fill the order was loaded and on its way to Indianapolis, a record for expedition that will probably stand unchallenged for some time to come. It is, we believe, the first time a real business transaction has been expedited by the flying machine, and the brick industry can take credit for this remarkable bit of enterprise.

Major King Starting on His Trip in the Course of Which He Delivered an Order for Building Brick to the Plant of the Western Brick Co., Danville, Ills.

Major King has been in the aviation service for two years or more, prior to which time he was prominent in the building industry of Iowa, being secretary of the Permanent Building Society of Iowa, with headquarters at Des Moines. This organization was one of the first to take up the work of promoting the use of burned clay products in that State, and accomplished much creditable work in exploiting brick and hollow tile for farm buildings in particular. A number of attractive pamphlets on that subject were published under Secretary King's direction. Major King is one of the few men in the United States Army who learned to fly after passing his fortieth birthday. He insists that luck in flying, as in everything else, is due largely to the saving grace of horse sense, a clear head and a steady hand, and, contrary to the general impression, flying is not particularly hazardous, predicting it will become a pastime almost as common as yachting or autoing. His own record justifies his opinion. He has made many flights during the past two years, with but one unfortunate incident. Some months ago he was making a trip with a companion when his engine went wrong, and it became necessary to land and make repairs. Unfortunately it occurred where there was no suitable landing place. For a few minutes it looked as if they would have to land in a tree top, but by skillful manipulation Major King avoided doing so, and landed safely, though the ship was injured slightly. It was a narrow escape, and a less skillful driver might have had a serious, if not a fatal, wreck. "We were very lucky," remarked Major King, in telling of the incident; "had either of us lost our nerve, the story might have been different."

The Major's longest flight was made last fall, when he and Lieutenant Helmerich left Post field, at Fort Sill, Okla., on Thanksgiving day, bound for Indianapolis. They reached the latter point the following Tuesday, having been delayed en route. However, they made but six stops on the way, first at Oklahoma City, then at Enid, Okla., Wichita, Kans., Higginsville, Mo., Collinsville and Litchfield, Ill. The last leg of the trip, Litchfield to Indianapolis, 210 miles, they made in an hour and fifty-six minutes, which was going some better than 100 miles an hour.

Major King has been called to Washington, where he will be located for some time at least, in the engineering department of the aviation branch of military service. He had previously been given official commendation for efficient service rendered. If Uncle Sam can secure a corps of enthusiastic flyers of the caliber of Major King, that department of the service willl make a record of which red-blooded Americans will be very proud.

LESSONS FROM PAVEMENT DESIGN AND CONSTRUCTION.

Mr. Fred R. Williams, paving engineer of Cleveland, Ohio, had a most interesting article in the October, 1918 number of Municipal Engineering, describing his method of drainage employed, which is not only interesting in itself but some experiences developed which emphasized the practicability and economy of the practice described beyond the drainage service by which the durability of the road is secured.

Dependable Highways, from its initial appearance, has always insisted upon underdraining the roadway by placing tile drains at intervals, staggered or extending across and underneath the entire width and connected with side tile drains disposing of the water.

Mr. Williams, describing his method, says:

"Woodhill Road and East 93rd Street in Cleveland, Ohio, is the most important cross-town thoroughfare in the southeast section of the city. In consequence it carries an immensely heavy traffic; passenger vehicles and commercial trucks make a steady stream in addition to street railway cars, which use a double track and operate on 3-minute headway.

The street is being paved with brick of two types; one section of 5-inch brick laid upon 7 inches of green concrete, the other 5-inch brick laid upon a 1-inch cement sand bed and 6 inches of concrete. In both sections there is, therefore, a solid pavement 12 inches deep which we expect to be adequate for both present and future traffic. The subsoil is of heavy clay. For a considerable distance Woodhill Road lies along the edge of a cliff, and this location, combined with the plastic subsoil made the drainage difficult."

"On this road 6 inches below and outside the curb, parallel to it on either side of the street, a 6-inch drain pipe was laid on the up hill side and a 4-inch drain on the lower side. Laterals were placed at the same time, laid 45 per cent. to the curb. These laterals at the highest point are 6 inches below the base of the pavement and a fall of 8 inches is provided to quicken the discharge into the parallel drains back of the curb. These parallel drains are discharged at intervals into 12-inch catch basins."

"At intersections, the end of the lateral next to the ties was buried deeper and a supplementary lateral was laid at right angles to discharge into the end of the diagonal lateral. The purpose is, of course, to clear water from all parts of the intersections, and it was found to be a feasible method.

War conditions made it impossible to secure burlap to cover the pipe joints; in the place of burlap, a thin layer of straw was laid over the pipe, and as far as can be determined, is quite satisfactory."

During the construction of this pavement, an exceedingly interesting experience developed, the advantage of which so far as we know, has never been called to the attention of road builders and while this advantage is positive proof of the worth of such a system to the durability of the road, its worth during construction as stated has not been given any weight.

A. E. Davis, Major M. L. King, T. A. Randall.

Since the appearance of Mr. William's article, and the completion of the street, he has stated that following frequent rains the contractor was enabled to proceed with his work earlier than otherwise possible, because these drains quickly dried out the road bed, thereby expediting the work by a great saving of time as well as by better conditions.

It is further learned from Mr. Williams that the worth of such drainage system during construction has been of such advantage to contractors in Cleveland that where plans and specifications have not been provided for such a system the contractors have installed it at their own expense, as an item of economy in construction cost.

One of the best things about good wages is that more wage earners can build good homes.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MEN.

STIMULATED by an increasing demand for brick and other clay products from the building operators of this vicinity, the local brick manufacturers and allied industries are reporting business as assuming very encouraging proportions. Throughout long months of stagnant business conditions following the signing of the armistice the brick manufacturers of this city maintained an optimistic attitude and outlook; they are now, or will be in the very near future, repaid for the optimism with as much business as they will be in a position to handle with the present supply of labor. At a recent meeting of building contractors held in this city it was decided to go on with the spring building program, not on a very large or extensive scale, but to "start things going." They have done this, and although it is not on as large a scale as could be hoped for, considering the fact that Philadelphia is far behind on its building program, it is enough to start the wheel of the construction industry rolling. Prior to holding this meeting representatives of the building contractors called on various manufacturers of building materials, such as the brick, lumber and plumbing men, and were assured of a reduction in the costs of their products in order to promote business along that line. The brick men granted a decrease of 10 percent. The "Own Your Home" campaign is to be launched on the 21st of this month, and it is expected that the success of the campaign will materially aid in further stimulating building construction. There was a great influx of laborers of all classes—in fact, men in every clime of life came to this city during the war to engage in war work. They brought their families, and now that a great percentage of war work is at an end they are engaging in other work and making their homes here. This, of course, calls for an enormous number of homes. The fact that Philadelphia cannot catch up on her building program this year, nor for another year or two, is in itself a very encouraging thing to look forward to, inasmuch as there will be a good demand for brick for building purposes for considerable time to come.

Contracts for the construction of three main and ten branch sewers have been awarded by Director Datesman, of the Department of Public Works of the city of Philadelphia. Instructions have been issued to commence operations at once. The cost is to be $360,000. Proposals had been received for at least twenty branch sewers, but the money available out of the loan funds would only permit the construction of but half of that number.

E. L. Dooley, secretary of the McAvoy Vitrified Brick Company, reports business, especially in the sewer brick line, as picking up remarkably well. There is also an increased demand for paving brick.

The brick business is marking time in expectation of the opening up of the municipal, state and government construction work, according to Cyrus Borgner, of the Cyrus Borgner Company. Mr. Borgner says that labor does not appear to be very plentiful, as he is still obliged to pay war-time wages.

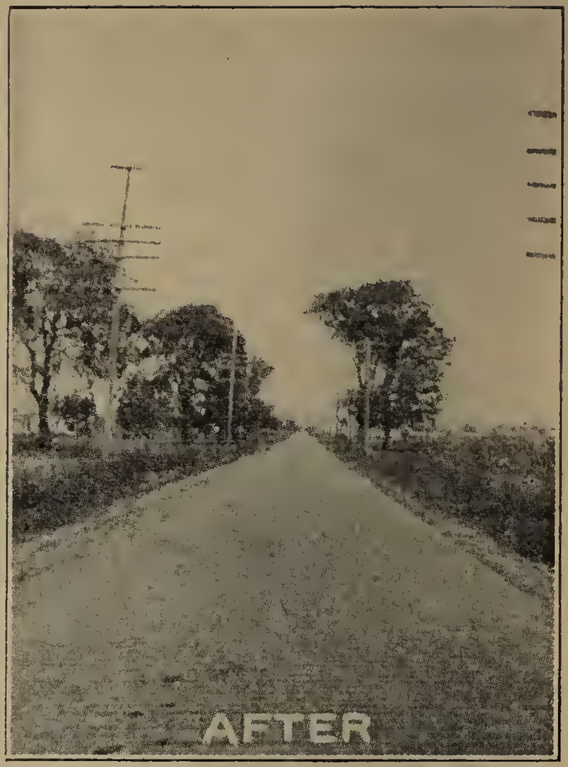
Dr. Charles B. Thwing, of the Thwing Instrument Company, recently made a business trip to York, Pa. He reports business is very good with the Thwing company.

E. C. Watson, secretary of the Jarden Brick Company, says that the building brick business is now in a state of coma, although there are some indications of a revival in the near future.

The North Philadelphia Brick Works report a small demand for building bricks, as does William Conway.

A QUAKER.

THE IMPORTANCE OF SUB-DRAINAGE IN ROAD CONSTRUCTION



THE fact that crops must be marketed, together with the knowledge of the shortage of railroad transportation facilities, is focusing the eyes of America more and more on the rural roads leading from the farms to commercial centers and shipping points.

Every progressive farmer should be deeply interested in the subject of road building, for it is of vital importance to him. He is greatly assisted or greatly handicapped if the roads leading from his farm to the point of marketing his products are in good or bad condition.

We are not going to describe in this article the various types of road construction or explain how the rural communities can finance same. We desire only to cite the all-important point, the basic principle in any and every kind of good road construction and prove how essential it is to the life of and the satisfactory service rendered by the rural highway.

A road or highway is no stronger than its foundation. This is a well recognized fact. Granting this to be so, it is all important that we make the foundation as strong as possible. The only way to secure a satisfactory foundation is by proper drainage of the road bed. The following reasons prove conclusively our contention.

Did you ever stop to consider the point, Why don't our roads rut and cut up in July?

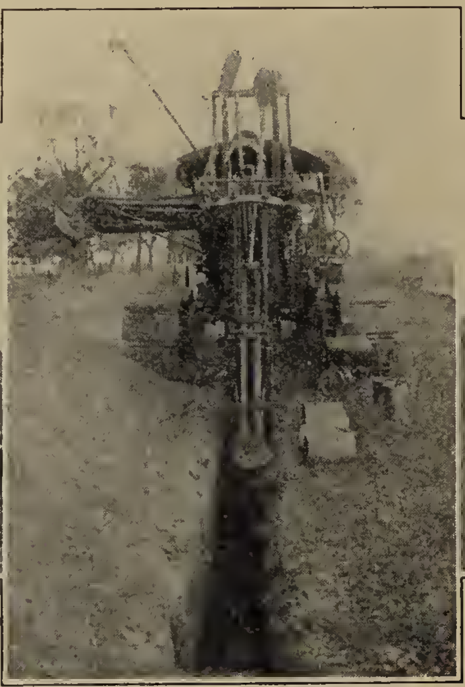
In the summer months of July and August the ground is very dry and the water level low and little or no destruction to the road from any kind of traffic occurs. It's simply because they are dry.

From this we may rightly draw the conclusion that the fundamental principle in road building in all types of road construction is to so build that the foundation shall be dry 365 days in the year. This can only be accomplished through sub-drainage, making the foundation dry, preventing water from getting in from the sides and the waterproofing of the surface by oil or an impervious material such as brick to prevent the water from getting in from the top.

The greatest destruction to our roads in this country occurs in the winter and spring months due to the freezing and thawing made possible by the moisture in the ground at that time. In the spring in very wet localities the high water level is a destructive element, frequently causing the foundation to give way.

We must admit therefore that moisture and frost are two elements that destroy a road. We must eliminate these two elements and can do so only by sub-drainage and water-

Rear View of Ditching Machine



Digging the Ditch

Tile Trenches 18 Feet Apart.

proofing. Surface drainage is all right so far as it goes, but does not prevent the water level from getting nearer than four feet from the traffic line, nor does it prevent the water getting into the foundation. Sub-drainage absolutely prevents this in time.

Remember this, if you can keep 4 feet depth of road dry 365 days during the year, that is all that is necessary to have a good road. The hard surface road will do away with oil and especially if it is brick, it will be dustless and almost everlasting, giving the horses a sure foothold and ensuring easy traffic during all seasons of the year.

One string of tile under the center of the road is not sufficient simply because it draws the water to the center. A string of tile on either side of the road-bed draws the water away from the road-bed. The proper sub-drainage according to an expert road builder is given in the following letter written by W. P. Graham of Rochelle, Ill., highway commissioner of Ogle County, Ill., who has been doing a grand good work constructing roads and backing up his knowledge and experience with enthusiasm and earnestness in behalf of the taxpayers in his portion of the state.

It has proven in years past that all types of construction, even the building of large buildings or of anything where a foundation was necessary, that unless a proper foundation was put in, there was a great deal of danger of settling from which serious damage results. Taking this broad view of road work and knowing the condition of many of the dirt roads in this state and yours and large sections of other states. I concluded several years ago that the fundamental principle in road building was sub-drainage.

Sub-drainage Would Remove this Condition

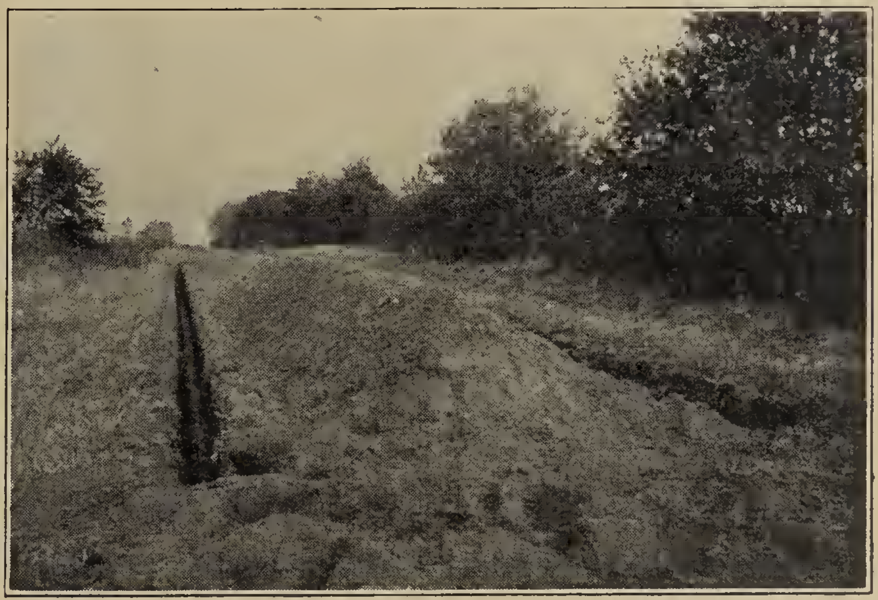
During the past five years I have had a great deal of experience in farm drainage from the standpoint of owning land and tiling it out and have seen the result. My observation has taught me that when anything is constructed where the ground under the construction is apt to be affected by moisture more or less, that it is absolutely necessary to use tile in order to bring about a dry condition that warrants the making of a good foundation. This being true in nearly every other line of business, I concluded that it was no less true in road building and that the only thing was to work out some thorough, practical system where it could be installed in the foundation work of road building, and without any question would give permanent results.

The result of this work was to decide that the proper system in road work was to run two strings of tile parallel with the road eighteen feet apart, or each string 9 feet from the center, using a 6 in. tile and laying it all from 3½ to 4 ft. or better in accordance with the outlet, then grade the road with 50 per cent. less crown than you would if the road was not tiled, allow the grade then to settle for one year or more, keeping it dragged, then sweep it well and oil it and you have a 365-day road for all time with a small cost in maintenance; for the 18 feet between these tile will get drier and harder every year. In five years the moisture is is practically eliminated from the 18 feet of ground and consequently during the winter months very little frost will enter this part of the road.

When you have produced such a condition, and it is absolutely possible to do this, you have the highest type of dirt road construction, and there is no road better to drive on than a good dirt road. And should one want to make a hard road of this, you have the very best foundation and will need only half as much material to build the hard road, thereby eliminating a lot of expense, to say nothing about a good dirt road until such a time as the hard road is necessary.

The Cost.

You doubtless will say that such a plan is all well and good, but it costs too much. Such is not the case, for I have sub-drained several miles, then with the grading and oiling, taking into account different prices of oil, have expended less than $1,500 per mile. This is based on the present high cost of everything. Under ordinary conditions, when worked down to a system, it can be done for much less. I am trying now to work out such a system, but of course have no control over the high cost of material and labor.



The Proper Way to Sub-drain Roads

I feel confident that if this system had been used a few years previous to the present agitation for high-cost-per-mile road construction, it would have saved the taxpayers millions and millions of dollars, and we would have had good roads, too.

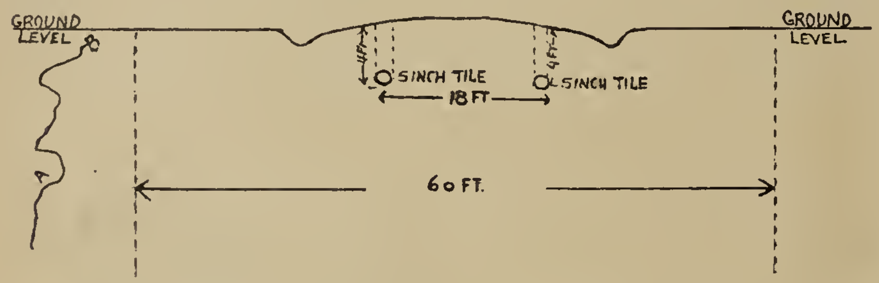
As an example, we had one mile of hard road in our township, with a quicksand bottom, and for many months of the year this road was in a frightful condition because of the quicksand filling with water, consequently weakening the base and destroying the road. The taxpayers found it impossible to keep this road in repair.

I tiled this road with two strings of tile 18 feet apart, scarified the surface, and added to the surface a small amount of stone, more to clean it than anything else, so I could use an asphalt dressing. Then rolled it well, asphalted the top, and it has been in use four summers and four winters, with very heavy traffic, and they have not made a mark in the road, the resurfacing costing only $1,800 per mile on an average haul of three miles. I could duplicate this job for $350 less per mile, as this was my first experience.

The results obtained here can be obtained on any type of dirt road in any locality.

History repeats itself in everything, and it has done so in road building, and we have found that all over the country roads built on what was considered a permanent foundation showed in ten or fifteen years to be anything but permanent, because of the capillary attraction of the water below this construction, which some years came high enough to affect the road and down went your construction. The plan which I have suggested will eliminate every bit of this trouble. It matters not what type of soil you have or how much water you have, it is possible to dry 18 feet of the ground between the two strings of tile if that space has been properly crowned, oiled, concreted, asphalted or bricked, which will serve as a waterproof top. This system prevents water from coming in from the sides, no matter how high the water level is outside, and then the waterproof top prevents the water entering from the top of the road, and therefore you have dry space of ground the depth of your tile, which is the best type of foundation for any road.

I believe the thinking people of today who are following this road question are almost satisfied that a brick construction on a much traveled road is practically the only road that will hold up outside of dirt when a dirt road is dry. For this reason this road question, in my judgment, resolves itself to this, that if we will tile our roads and then grade them and allow them to settle two years and oil them, we will have the best roads in the world until the time comes when we can afford the brick, and on much-traveled roads the brick road will eventually be put in. Thus, if the dirt road has been subdrained previously, the brick road when built will have the most satisfactory foundation possible.



When the water rises up in the ground as of line A to a point at B, the lateral pressure forces towards the tile on both sides and is taken away, so that no water ever gets into the space 18 feet wide and 4 feet deep, directly under the traffic line and the waterproof top keeps it from entering there, therefore, a dry cake of ground that will never give way. Dirt roads can be made 365 day roads in this manner.

Mr. Graham accepted the office of township highway commissioner under the single commissioner plan, to serve his people to the best of his ability in securing good highway construction. His well-merited success is shown in the many miles of excellent roads he has built near Rochelle, Ill., and the great reduction he has made in the cost of making same.

We want to emphasize the necessity of the farmers keeping constantly in mind and to strongly insist when the subject of good roads is under consideration in their community, that the all-important item in good road construction—proper sub-drainage—is adhered to.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.

WITH OVER A HALF million dollars worth of construction work tied up in San Francisco and vicinity waiting for a steel reduction, brick and clay manufacturers of this district are forced to mark time a little longer. In an effort to encourage the builder, the local dealers have effected a reduction in the price of brick. Common brick can now be purchased for $10 per thousand, F. O. B. plant, and due to extensive advertising, the brick men report a slight stimulation in the market. According to the work which is piling up in the architects' and contractors' offices, as soon as the price situation is somewhat relieved, there is every reason to believe that conditions will rapidly better themselves.

After more than eight months of inactivity, due to reconstruction work on the Lincoln plant, the Gladding-McBean pottery has resumed clay grinding, and within another month or so the factory will be in complete running order. The plant is closely allied with the industrial life of Lincoln, as the labor at the factory necessitates a large force of workmen. Reports from that locality indicate that returning soldiers and sailors are finding work at the pottery. All those who enlisted have been given back their former positions and many new places have been found for other men from the service.

Until recently the official business headquarters of Gladdeing-McBean Co. have been maintained at Lincoln, Cal., but the offices on the eleventh floor of the Crocker building at Market and Post streets, San Francisco, has been announced as the principal place of business for the company.

Clarence F. Pratt, president of the Pratt Building Material Company of San Francisco, prominent member of the building interests, has published a "Freight Paid and Shippers' Record Book," which he compiled himself for the benefit of the bookkeeping system incidental to miscellaneous shipments by all forms of carrier. Mr. Pratt is considered quite an authority in these matters, as he has had about twenty years' experience in the shipping business.

Building activities in the trans-bay section have picked up nicely during the past month and, aside from labor disturbances on that side of the bay, conditions are reported to be in satisfactory shape. The housing problem is by no means a satisfactory one in Oakland, where, as well as in San Francisco, living quarters are badly needed and rents are high.

Gustave Larson, superintendent of the Los Angeles Pressed Brick Company and the inventor of Larsite, the puffed brick recently perfected, was in San Francisco the early part of the month. He visited the Oakland shipyards, where the new concrete ships are being poured. Two Larsite ships are under construction there at the present time. The kiln in which the new composition is burned has been improved upon by Mr. Larson, and it is said that the burning is very much less expensive than formerly.

The old plant of the Irwin & Lewis Lumber Company near the Pullman shops in Richmond, Cal., is being remodeled for the use of the Coast Fire Brick Company of that place. The organization is spending $35,000 on the improvements and the present capacity of 20,000 bricks per day is to be greatly enlarged.

A four-story brick and terra cotta school building is to be erected in the near future for the Berkley Baptist Divinity School in Berkley, Cal. Miss Julia Morgan, architect, is preparing the plans for the structure.

Due to a suspicion that a recent fire at the plant of the Carey Brick Company at Richmond, Cal., may have been of incendiary origin, a rigid investigation is being carried on by the necessary officials.

A permit to erect a four-story brick apartment house on the corner of Sacramento and Franklin streets has been given M. A. Little of this city.

Alterations for the banking quarters of the Humboldt Savings Bank, in Market near Fourth street, including hollow tile, will cost in the neighborhood of $4,000. Architect Smith O'Brien prepared the plans for the improvements.

The contract for the new Red Cross Hospital, which is to be erected in the San Francisco Presidio in the near future, has been given to A. W. Larson. It is understood that the construction is to be of hollow tile.

Due to the rapid growth of the clay industry in the southern part of the state, the Alberhill Coal & 'Clay Company has established a research laboratory which is open to any one interested in the subject. It is situated at the corner of Griffin avenue and Alhambra road, within easy reach of Los Angeles. It is expected that the research rooms will be the gathering place of those of authority in the ceramic field, as experiments of all kinds will be welcomed. James H. Hill, president of the Alberhill organization, made a special point of explaining that while his company is providing the laboratory, they have no intention of restricting the use of it to anyone interested in the industry. He stated that the principal aim of the company in building such an institution was to promote Southern California in the production of clay products.

In a recent statement given out by Howard Frost, president of the Los Angeles Pressed Brick Company, he told of the advertising plans of the American Face Brick Association. The campaign which is to be launched in the near future calls for an expenditure of one million dollars during the next three years for advertising and publicity.

A church and parish house which are to be erected at Sausalite, Cal., at a cost of $40,000, are to have terra cotta roofs on both buildings.

A three-story brick auto salesroom is to be erected on the northeast corner of Van Ness avenue and Washington street, San Francisco, by the Gerard Investment Company at a cost of $40,000.

Bids are now being received for the brick and tile work on two eight-room hollow tile bungalows, which are under construction for the group of Belvedere Hotel buildings at Santa Barbara, 'Cal. Myron Hunt of Los Angeles is the architect.

Permits to sell stock were recently issued to the McKnight Fire Brick Company of Fresno, Cal., which will dispose of 20,000 shares of its capital stock at $1 per share.

San Francisco, Cal. SUNSET.

BUILDING BRICK IN MILWAUKEE.

According to the building inspector of Milwaukee, plans are now under way or construction started on a considerable number of important buildings. Among the most important are named the following: Wisconsin National Bank, new building, $1,000,000; R. A. Johnston Co., factory, $300,000; Fisher Furniture Co., store addition, $125,000; National Exchange Bank, new building, $200,000; B. Hoffman Manufacturing Co., business building, $35,000; Cutler-Hammer Manufacturing Co., additions, $150,000 and $20,000; Hanson Storage Co., warehouse, $30,000; A. O. Smith Co., addition, $300,000; Milwaukee & South Shore Electric Line, terminal, $100,000; Gimbel Bros., addition, $50,000; public school buildings, $800,000; central police station, $500,000; new county hospital, $300,000; private hospital at Wells and Eighteenth streets, $50,000; apartments, Astor street and Juneau avenue, $200,000; Eighteenth street and Grand avenue, $150,000; 255 Thirteenth street, $50,000. The J. L. F. Spark Plug Company will erect a brick and concrete factory building on Hillside Lane and the Milwaukee Dairy Supply Manufacturing Company a brick and concrete addition at Burleigh and Thirtieth streets. A two-story brick and concrete addition will be erected by the Schuster Department Store, and plans are under way for a four-story, 140 by 120-foot department store for I. Goldman, on Mitchell street, to replace the structure recently destroyed by fire.

SOIL POROSITY INCREASED BY UNDERDRAINAGE.

No fact is better established than the increased porosity of close clay soils by underdraining them. Soils that are so compact as to allow a very slow percolation of water through them in their natural state will, after being underdrained, admit the water freely. It is true, however, that some length of time is required to allow the various agencies to affect the porosity of the soil after being underdrained. The water at first finds its way slowly to the underdrain, the air following fills the spaces which exist between the soil particles. The air hastens the soil decomposition. Soil decomposition increases the porosity.

The roots of plants find their way down through the minute openings, perform their office work and die, decay and thus add to the further soil porosity. Increased porosity implies an increased amount of air in the soil, which adds to the increased decomposition of the soil.

In this climate, an important agency in increasing the porosity of the soil is the frost. The freezing of the earth separates the particles of the soil. Deep freezing of the soil increases the porosity to a greater depth, which adds so much to the depth of the area through which the roots of the growing crop may descend for food and moisture.

Underdrained soils do not freeze so solidly as those not drained but they freeze much deeper. For the reason that in a drained soil only the water adhering to the particles of soil are congealed or frozen, the spaces in the soil being filled with air admits the escape of heat to the surface from a greater depth which increases the depth of the frost line. In this connection it is well to remark that drained soils thaw out much sooner, having a limited circulation of air, which carries with it any increase of temperature.

We are all familiar with the fact that water will heat very slowly if the heat be applied at the top only; applying the same law the thawing of the soil must be slow where the soil spaces filled with water are solidly frozen.

It is a well known fact that drained porous soils are ready for the plow several days in advance of the compact soil.

The tillage of the soil ordinarily increases the porosity, except in the case of soil that is too light. There are soils so light and porous that they need to be compacted. But close, clay soils need to be tiled so as to make them more porous, the tillage increasing the porosity. This is true of any soil except where a system of tillage is adopted intended to compact the soil. But the close clay soil that is not underdrained is compacted readily by a heavy rainfall and the work of tillage is made more difficult. The drained soil readily admits the passage of the water through to the drain, freeing the soil spaces of any excess of water, thus preserving the porosity of the soil which promotes the soil decomposition, which is so needful in supplying plant food for the growth of our crops.

With sufficient underdrainage both the surface soil and the subsoil are made available for the growth of crops. Some of our good farmers who are belaboring close retentive clay soils on the surface, would be astonished at the result of their labor if their lands were well tile drained. A sight draft through underdrainage on the farms that lie underneath the farms that are at present being tilled would be honored so promptly that it would delight some who have hardly smiled for a decade of years.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XXXVI

SETTING FOR FLAME EFFECTS

BRICKS to be fire flashed are set on the flat and as above noted, it is important that the setting be such as to permit an equal flame contact with the faces of the bricks. The color effects are very sensitive to the action of the kiln gases. Where the bricks are set in checker work, the gases after passing the checkers flare out and produce a fan shaped flame effect on the faces of the underlying bricks.

Walter A. Hull's paper, "On the Burning of Rough Texture Shale Bricks," in Vol. XVI, Trans. American Ceramic Society, should be read by every clay worker interested in rough texture face bricks. The paper is a detailed description of methods of burning to get any desired color effects, but it incidentally discusses the setting.

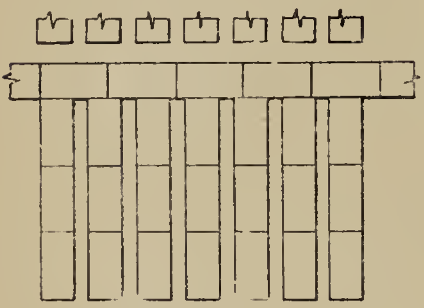


Figure 120

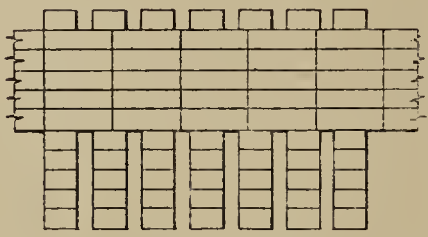


Figure 121

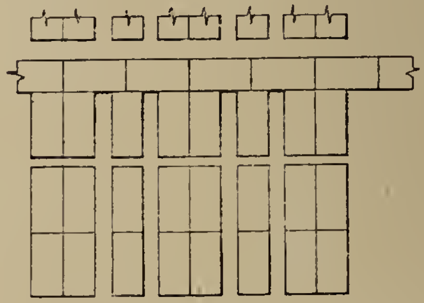


Figure 122

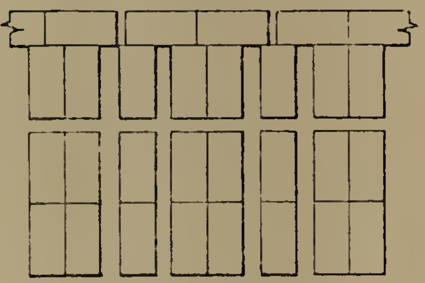


Figure 123

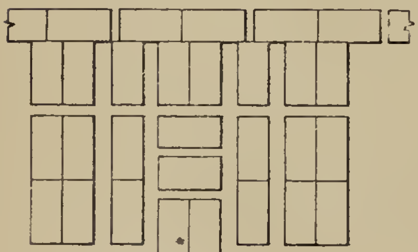


Figure 124

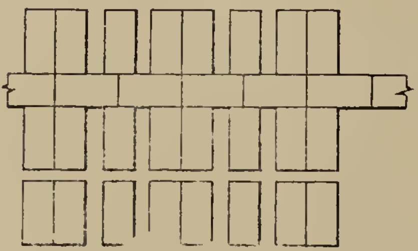


Figure 125

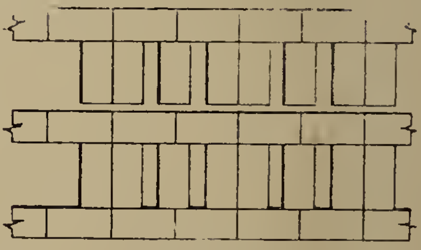


Figure 126

Fig. 120, plan, and Fig. 121 front elevation show a simple setting for flashed bricks. As shown in the plan the bench starts with a stretcher and three headers, or two headers for a two and one-half brick bench. This plan is carried up five to six courses or more as the uniformity of the brick will permit and then reversed for a duplicate number of courses, and thus alternating to the top of the setting. It is desirable to have the setting work out to form independent columns 3½ bricks by 3, or 4 or 5 bricks. The plan shows a 3½ x 5 brick column but will also work out 3½ x 4 with a little wider spacing than that shown. Frequently the headers are set part single and part double as in Fig. 122—the double courses set back to back give greater stability to the column and such setting permits us to reduce the size of the columns from that shown. For instance, if the third and fourth courses from the left in Fig. 120 are brought together, the column would work out four stretchers and the setting would be four single headers alternating with one double header.

The benches are spaced about 2½ inches and to stay them it is necessary to project headers at intervals across this space to abut against the adjacent bench, as seen in Fig. 124, and the double courses are desirable for this purpose in that no broken bricks are required to fill up the space left vacant by the projection.

In the sketches the bricks are shown set tight, which would give one flashed end in each 3½ brick. This is not a sufficient proportion of quoins for many jobs, and the number may be increased to 100 per cent. by separating the bricks. If the header courses are set away from the stretchers the usual space we will get two flashed ends from each 3½ bricks. If the loose end header is set away from the adjacent header we increase the flashed ends to 3 out of a possible 3½, and one of them would have both ends flashed, which is necessary for pier and pilaster work, and the stretchers may be spaced as shown in Fig. 123, thus giving a flashed end on each brick. In some instances where it is desirable to have the benches even bricks—three or four as may be required—the first setting has a stretcher course front and rear and second tier will be all headers, thus alternating to the top.

The setting shown in Figs. 122 to 125 inclusive, is more complicated but it has greater stability. The bottom course is set as shown in Fig. 122 merely to give a full bearing for the superimposed stretchers. This bottom course may be omitted, and the setting started with the regular layout as shown in Fig. 123. This is carried up four to six or more courses, then comes a single tie course as shown in Fig. 125 or Fig. 126, and if Fig. 125 is the plan followed, this is topped by a single course reversing Fig. 122. Then follow four to six courses as in Fig. 123 reversed. The bench tie course, Fig. 124, or Fig. 125, may be repeated at this level, or may be omitted until some higher level is reached, depending upon the need for ties.

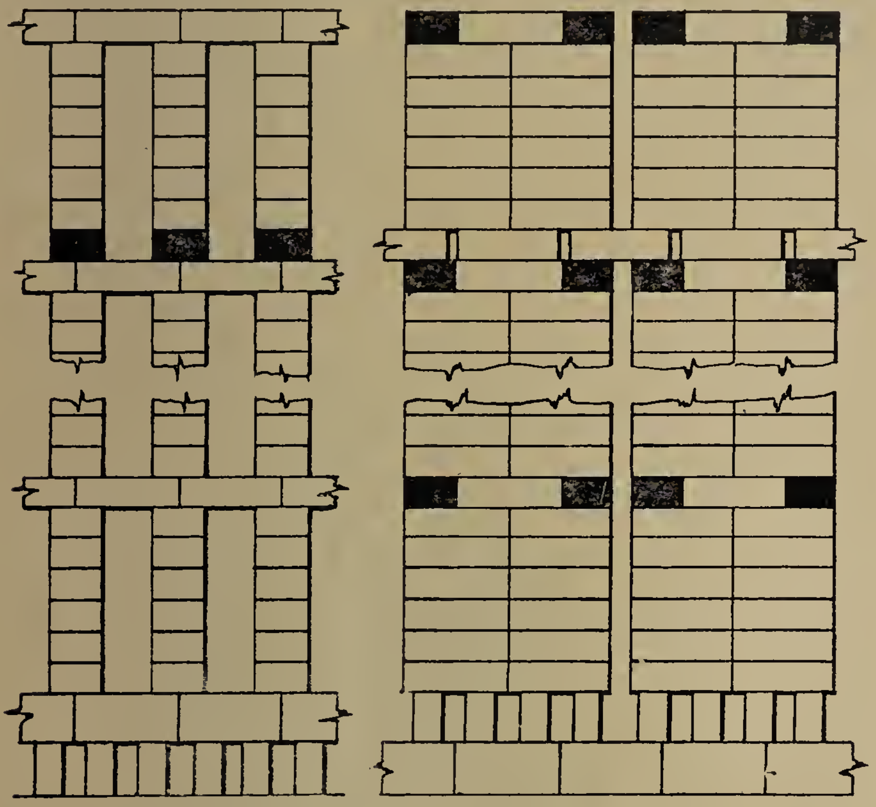


Fig. 127, Front View. Fig. 128, Side View

The complete setting will be as follows: First course as in Fig. 122; 2nd, 3rd, 4th and 5th courses as Fig. 123; 6th course, Fig. 125; 7th course, Fig. 122 reversed; 8th, 9th, 10th and 11th courses, Fig. 123 reversed; 12th course, Fig. 125 reversed. An occasional header is projected from the plan Fig. 122, or Fig. 123, as shown in Fig. 124. The 12th course completes the cycle, and the order is repeated to the full heighth of the setting.

If we use the tie shown in Fig. 126, the setting will be as follows: First course, Fig. 122; 2nd, 3rd, 4th and 5th courses, Fig. 123; 6th course, Fig. 126; 7th, 8th, 9th, 10th and 11th courses, Fig. 123 reversed; 12th course, Fig. 126, if close tying is necessary, or if not then the 12th course is as Fig. 122, followed by Fig. 123 in the 13th, 14th, 15th and 16th courses, then perhaps the tie, Fig. 126, followed by Fig. 123 reversed.

A simple setting for flashed brick is shown in Fig. 127, front view, and Fig. 128, side view. The setting is started in two courses set on edge. Flat setting is carried up in two brick benches and the brick are spaced so the flat setting will break joints with the tie stretchers. This is also very open setting and expensive in kiln room, but the loss in this way may be partially offset by quicker burning. The ties run through the full width of the setting, and as they always result in culls it is important that the flat courses in each tier be set as high as practical to reduce the number of tie courses to a minimum.

About one-third and three-fourths the total height of the setting, or as frequently and at such heights as may be found necessary, a double tie course is introduced—one the regular cross tie and the other a through bench tie as shown in Fig. 128. Usually these bench ties are placed at levels convenient for the setters—the first tie coming at the limit height of setting from the floor level, and upon this tie the setters stand to carry the setting to the higher levels. The tendency to rolling is greatest at the top of the setting and the upper bench tie should be near the top, even though three bench ties may be necessary, but a third bench tie is objectionable from a working standpoint because it introduces another setback over which the setters must reach to set the top tiers.

A setting similar to the preceding is shown in Fig. 129, front view, and Fig. 130, side view. As in the preceding the flat courses are all headers but by using a double tie course for each tier the spacing is much closer. The double tie course gives greater stability, and is preferable where the rolling and twisting tendency is excessive although the number of culls is increased. However, considering the total mass, the proportion of culls in this setting will be only slightly greater than that in the preceding method.

(To be continued.)

WHY DOES DRAINAGE PAY?

Because it makes a productive soil out of an unproductive one. Soils wanting in the elements of fertility are not the only poor soils we have. If the elements are locked up in the shape of hard clods, undecayed vegetable matter, or in water-soaked material, the soil is practically barren no matter what may be its inert fertility. Drainage pulverizes the soil by removing the surplus water and thereby admitting the air and whatever heat it may bring with it. By this process the raw and undecayed soil matter undergoes a change and is slowly converted into food, suitable for the nourishment of plant life. It deepens the soil by lowering the water line, thus giving more room for the root development of growing plants.

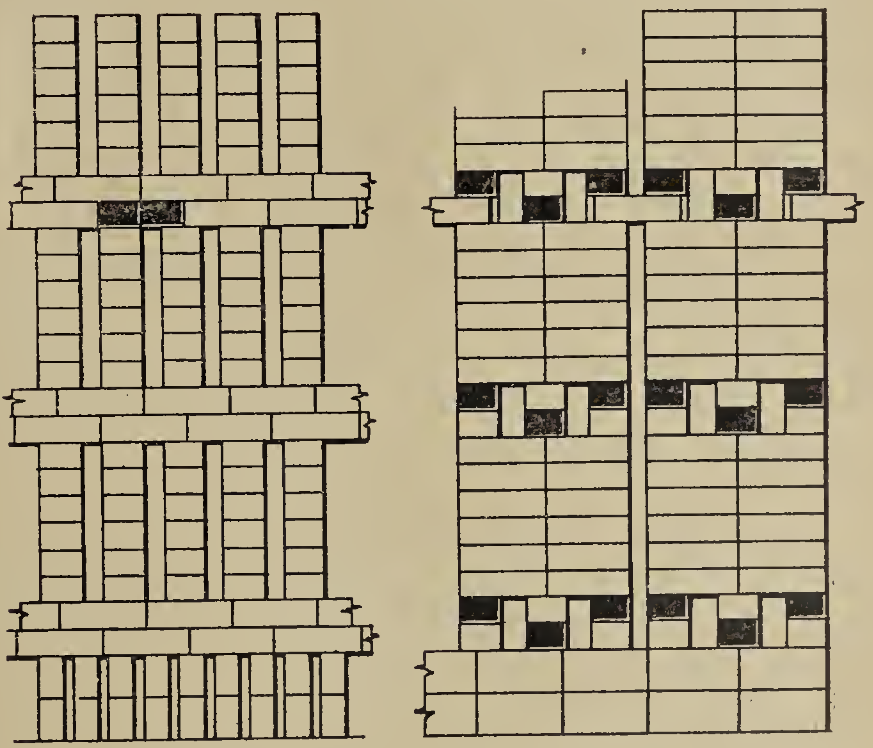


Fig. 129, Front View. Fig. 130, Side View

It will be seen that all of these changes are such as will contribute to the growth and development of our cultivated field crops, thus inducing greater productiveness and consequently bringing larger profits. It is also worthy of notice that the cost of cultivation is less on a fertile well drained soil than on the miry ill favored fields often worked upon. Drainage, then, not only pays in direct increase of production, but also in economy of cultivation. "A penny saved is a penny earned." An acre reclaimed by drainage is two acres gained.

ILLINOIS CLAY MANUFACTURERS MEET.

THE FORTY-FIRST ANNUAL Convention of the Illinois Clay Manufacturers' Association was held in Chicago, Ill., April 9 and 10 at the La Salle Hotel. A most interesting program had been prepared and much valuable information was gained by those present. The convention was very successful save in one particular, that of attendance, which was not in keeping with the importance of the meeting, or the knowledge to be gleaned by participation in same. About two score were there, including those who were in attendance at the meeting of the Indiana-Illinois Division of the American Face Brick Association, the Indiana Brick Manufacturers' Association, the Illinois Paving Brick Manufacturers' Association and the Illinois Drain Tile Manufacturers' Association. It is hard to understand the lack of interest in these State meetings. Of course, the Illinois Association was handicapped by the fact that most manufacturers are busily engaged at this time in starting up their plants for the season. However, the importance and excellence of the program would naturally lead one to believe that no wide awake manufacturers would miss such an opportunity to get first hand information of material help in solving the problems to be faced during the coming season .

The first session was held Wednesday afternoon, April 9. President Douglas Stevens, of the Acme Brick Company of Cayuga, Indiana, and Danville, Ill., presided in his usual capable manner. The first formal paper on the program was that of Prof. C. W. Parmelee on the subject, "The Silica Deposits of Southern Illinois," in which the author described these particular deposits, giving their location, extent, value, and the many uses for which silica is adaptable.

Prof. Ralph Hursh of the University of Illinois, read an interesting paper on "Heat Losses and Fuel Economy" in Periodic Kilns, which will be printed in full in a subsequent issue, as will likewise the paper by Prof. M. H. Robinson on "After-War Problems of Labor and Capital. The latter was a very careful study in economics in its broadest sense.

The last formal paper of the morning session was by Prof. C. C. Wiley on "What Paving Brick Should Be and Do," in which he reviewed the paving conditions of today, ridiculed the specifications put forward by certain associations, and gave details of the tests made at the University of Illinois, and experimental sections near Danville, Ill.

Wednesday evening an excellent dinner was enjoyed by the delegates who listened to three interesting papers delivered by members of the Chicago section of the American Ceramic Association. In the absence of the president of the section, Will D. Gates presided in a most acceptable manner. The papers included "The Humidity System of Drying for Clay Wares," by B. Radcliffe; "The Heat Insulation of Industrial Furnaces," by H. N. Haberstroh; and "Notes on Zirconia," by E. A. Libman. The first paper was followed by a lengthy discussion on humidity dryers in general. Mr. Haberstroh, a representative of the Celite Products Company, dealt with the application of Celite products for heat insulation on ceramic plants. The discussion of same brought out the ways and means of using the Sil-O-Cel brick and Sil-O-Cel powder for typical furnace installation. Mr. Haberstroh distributed blue prints of diagrams showing heat flow, temperature gradients, and fuel loss in uninsulated and insulated furnace walls, and typical furnaces insulated with Sil-O-Cel brick and powder.

Mr. Libman's paper was a thorough treatise on Zirconia, and proved very interesting to the delegates, due in part to the newness of the material and its many possibilities. His description of the Zirconia deposits of South America, the method of mining, transportation and final testing, showed the unusual character of this little known and lately discovered material, which has a greater fire resistance than our highest grade refractories.

The last number on the evening's program was by Dr. Mars, of the St. Louis Hydraulic Press Brick Company, whose talk on "Americanism," interspersed with humorous stories, made a deep impression on the audience.

Thursday morning was given over to business sessions, the various organizations meeting in separate rooms. At noon all the delegates met together at a luncheon given under the direction of the Illinois Clay Manufacturers' Association. President Douglas Stevens acted as toastmaster, introducing as the first speaker F. W. DeWolf, of the Illinois State Geological Survey, who talked interestingly on the "Open Price Policy," referring to the general outline and purposes given in a booklet soon to be published by the Illinois Coal Trade Association. He pointed out the usefulness of such a policy to the coal operators and set forth the advantages to be gained by the adoption of a like plan by the clayworkers. He commended the various clayworkers' organizations that have adopted the open-price method, declaring that there were other benefits to be derived than that of price regulation. Through the open-price policy, Mr. DeWolf said, the men in the industry have co-operation, accurate knowledge of cost through constant estimating, standardization of product, reduction in fuel losses, better ware manufactured, better equipment used, more comfort for employes, with a resultant interest in eliminating waste, etc.

Douglas F. Stevens, Danville, Ill.

Mr. Andrews, of the Underwriters' Laboratories, described the work at their institution, purposes and other details. Prof. Parmelee gave a message from Dean Richards, of the University of Illinois, urging the clayworkers of Illinois to take advantage of the 102 free scholarships, totaling $13,000, offered by that institution to the ceramic industry alone, and see to it that this number of young men in the State of Illinois take advantage of such a splendid opportunity. Mr. Harvey Adams, of the Danville Paving Brick Company, Danville, Ill., delivered a splendid talk on brick pavements, taking as his text an editorial recently appearing in the Chicago Tribune, on "Whether a Good Road Can Be Built Without Cement." His answer was decidedly emphatic and illuminating, and will be given in full in an early issue of The Clay-Worker.

After the report of the auditing committee, the election of officers and committees took place, as follows:

President—Harvey Adams, Danville.
Vice-President—E. F. Plumb, Streator.
Secretary-Treasurer—C. W. Parmelee, Urbana, Ill.

Legislative Committee—William Hammerschmidt, Lombard; Frank W. Butterworth, Danville; J. W. Stipes, Champaign.

Cost Accounting Committee—D. C. Haeger, Aurora, Ill.; Douglas Stevens, Danville; E. F. Mattes, Decatur.

The nomination of board of advisors for the ceramic-engineering department, to be presented to the Board of Trustees of the University of Illinois, resulted in the following selection:

Will D. Gates, Chicago; Frank W. Butterworth, Danville; J. W. Stipes, Champaign, and A. W. Gates, Monmouth.

In this same connection the Chicago section of the American Ceramic Society nominated as their committee:

E. F. Achardt, general manager of the Federal Plate Glass Company, Ottawa; Theo. A. Dickinson, Marquette Cement Manufacturing Company, Chicago; F. H. Fall, Jr., Benjamin Electric Manufacturing Company, Chicago, and Charles A. Reid, Chicago Retort and Fire Brick Company, Chicago.

Those in Attendance.

BROCKMAN, ED., R. H. Chem. Co., Chicago, Illinois.
McLAUGHLIN, N. H., Sec'y., Alsey Brick and Tile Co., Alsey, Illinois.
GEORGE, E. M., Main Belting Co., Chicago, Ill.
HAIGH, L., American Clay Mchy. Co., Bucyrus, O.

Prof. C. W. Parmelee, Urbana, Ill.

DANIELSON, R. R., Benjamin Electric Mfg. Co., Des Plaines, Ill.
LAWSON, GEORGE G., Northwestern Terra Cotta Co., Chicago, Ill.
ORTMAN, F. B., Northwestern Terra Cotta Co., Chicago, Ill.
WILSON, C. J., Hydraulic-Press Brk. Co., Chicago.
ZORN, E. L., Editor, Brick and Clay Record, Chicago.
STEINHOFF, F. L., Brick and Clay Record, Chicago.
LANDGREBE, G. C., Huntingburg Pressed Brick Co., Huntingburg, Indiana.
HERVEY, E. C., Hyd. Press Brick Co., Indianapolis.
LUCKETT, G. B., Crawfordsville Shale Brick Co., Crawfordsville, Ind.
GATES, WM. D., Am. Terre Cotta Ceramic Co., 145 Peoples Gas Bldg., Chicago.
SUHRHEINRICH, H. J., Standard Brick Mfg. Co., Evansville, Indiana.
KLEYMEYER, H. C., Standard Brick Mfg. Co., Evansville.
MAMER, J. M., Campus Brk. and Tile Works, Campus, Ill.
WALTER, GEO. J., Drain Tile and Brk. Co., Chatsworth, Ill.
HAMMERSCHMIDT, WM., Lombard Brk. and Tile Co., Lombard, Illinois.
PARMELEE, C. W., University of Ill., Urbana, Illinois.
RAPP, ALBERT, Rapp Clay Product Co., Peoria, Ill.
HAEGER, D. C., Haeger Brick and Tile Co., Aurora, Ill.
JONES, O. L., Ill. Clay Products Co., Oglesby.
McKOWN, W. R., Brooklyn Brk. Co., Indianapolis, Ind.
VARNEY, W. P., Hydraulic Press Brick Co., Chicago, Ill.
POWELL, C. G., Montezuma Brick Wks., Montezuma, Ind.
CARTER, F. R., Peoria, Illinois.
MERNAGH, R. L., Alton Brick Co., St. Louis, Mo.
GATES, A. W., Gates Fire Clay Co., Monmouth, Ill.
PRATT, WALTER M., Earlville, Ill.
LUCKE, F. W., Lucke, F. W. and Co., Chicago, Ill.
ROOT, A. R., Chambers Bros. Co., Philadelphia, Pa.
RANDALL, THEO. A., The Clay-Worker, Indianapolis, Ind.
HURSH, R. K., Urbana, Illinois.
PLUMB, E. F., Streator Brick Co., Streator, Ill.
SUPPLE, G. J., Western Brick Co., Danville, Ill.
BUTTERWORTH, F. W., Western Brick Co., Danville, Ill.
DAVIS, A. E., Western Brick Co., Indianapolis, Ind.
MORRIS, J. F., Streator Drain Tile Co., Streator.
REEVES, JAMES A., Streator Drain Tile Co., Streator.
ASHLINE, J. B., St. Anne Brk. and Tile Co., St. Anne, Ill.
ANDERS, E. L., Chicago, Ill.
DE WOLF, F. W., St. Geological Survey, Urbana, Ill.
STEVENS, C. N., Acme Brick Co., Evanston, Ill.
STEVENS, DOUGLAS F., Acme Brick Co., Danville, Ill.
ADAMS, HARVEY C., Danville Brick Co., Danville, Ill.
RANDALL, J. E., The Clay-Worker, Indianapolis, Ind.

Written for The Clay-Worker.

SEEN IN NEW JERSEY.

WHETHER OR NOT any building is to be done the coming year is becoming an acute question. Notwithstanding the urging of the government and various other influences, comparatively little preparation has been made for building this year. One builder says nothing can be done until the Victory Loan is out of the way. Another agrees with that, and adds that high prices are holding back building more than the Victory Loan. Still another says that unless labor sees fit to relax a little of some of its demands it will be quite impossible for anybody to build.

How this will affect the brickyards is another matter. The yards seen, like those along the Hackensack, are beginning operations in a small way. Pits are now in process of being pumped out, which have been full of water for two years. Repairs are in progress about the sheds and the drying yards are being leveled and prepared for business. Little indication of larger employment is held out for the present, and unless demand for brick increases a possibility exists that operations about the yards will be very small this season. Manufacturers see little chance of selling and cost of operation hasn't declined materially of late. Until it does, it is useless to expect important developments. Production costs are now so heavy that even with prices high the market is too uncertain to warrant liberal development. Maybe in the near future conditions will change, but at present they are unfavorable and brick men are moving very cautiously. And some manufacturers feel that it would be folly to undertake important developments until they are more certain of their ground.

The small supplies are selling slowly. In Newark from $14.50 to $16 has been paid. In Jersey City it is possible to buy a little less, say around $14, and from that up to $17. Paterson has little business, and around $15 is asked. New Brunswick is doing very little business, but sales have been made as high as $15.70. Trenton is a little more active, and as high as $14.50 to $15 has been paid. Passaic is in need of new houses, but very little is done. Prices range as high as $16. In Hackensack as low as $13.50 has been accepted. Englewood quotes $14. These figures prevail substantially all over the State. They vary somewhat with the locality and the persons buying and selling. But the figures run about the same throughout. Near the point of production they are less, but elsewhere they are higher, transportation charges figuring more largely than formerly. Freight rates are higher and it is more difficult to get shipments where they are wanted. Prices are influenced somewhat by these things. Whether prices tend upward or downward is a question which has not yet been definitely determined. Some think they are higher. Others say they are lower. Perhaps both are right.

The discussion of the construction of a tunnel between New Jersey and New York has become very general. The final bill awaits the signature of New York's Governor, but inasmuch as he is opposed to a tunnel, some have believed he would veto the bill, which would stop construction during his term. New Jersey has passed the law and provided for the appropriations and the New York Legislature has passed the law, but Gov. Albert J. Smith has no sympathy with it. It will be little short of a calamity to the business interests of both States if the project is blocked longer. Strikes on the boats twice this year have shown clearly how both sides of the North river can be clogged and all business stopped by difficulties on the water. A tunnel would end that forever.

Workmen engaged in the building trades, even though they have no work, are striking for higher wages. Painters and most interior workers are asking $1 an hour. In the absence of important operations employers are losing little flesh worrying about what the employes are doing. They point out that inasmuch as there is no work it is quite impossible for them to meet the strikers' demands, and ask them to call off demonstrations until the building trades revive. But the workers are still very determined and refuse to listen. They say they are going to have signed agreements at the rate of $1 an hour or else they are never going to work.

In the Raritan section manufacturers are beginning operations, but they are not proceeding with anything like their usual activity as yet, with the exception of a few. Manufacturers say that something must be done in construction work, since the State is woefully underbuilt. Labor promises to be scarce. Skilled labor is hard to get and the number of laborers seeking work about the yards is not nearly as large as it was once. Perhaps this will impose an additional handicap, though it is hoped that they will be able to go on with their business as they did formerly. The clay industry in the Raritan district is a great trade, and anything which tends to retard its development works a hardship to all other industries in the district.

A. L. B.

THE FACE BRICK INDUSTRY.

THE statistical records of the face brick industry, as we know it in this country, date back nearly 25 years. We had before that time various items in fancy and ornamental brick, but the brick industry in the main was classed just as brick. Some were harder burned than others, some smoother and some of better color, and there has nearly always been a practice of sorting out to get the best and most attractive brick for the outer face of walls. And it was from this practice that we eventually developed the face brick as a distinctive item in brickmaking and structural work. The development of face brick as a distinct item moved slowly for the first five years, then began to speed up a little, since which time this item has not only attained importance, but face brick has also spread out in the territory of production till it is now second only to common brick in its wide distribution.

Face brick is now made in at least forty-one states. It ranks fifth in volume among the brick and tile products, and the total annual value had passed the $10,000,000 mark before the war. The only states in which face brick is not produced in quantity enough to be listed in the U. S. Geological Survey statistics are, Delaware, District of Columbia, New Hampshire, Vermont, Mississippi and Florida. These, it will be noticed, are in the main tributary to other states where face brick is produced, so this product is in practical reach of every part of the country. A few other states produce only limited quantities, but this will evidently increase as the demand for face brick makes itself felt.

The first listing of face brick in the statistics of the U. S. Geological Survey was in the figures for 1895, which showed a production of 339,204,000 front brick, valued at $4,339,367, or an average of $12.91 per thousand. The same year there was listed under the head of fancy or ornamental brick a production valued at more than half a million dollars. It seems that in these early listings enameled brick was included in what was termed front brick, for a few years later this product was set forth as a separate item, and coincident with it the figures for front brick showed a falling off. Since that day great progress has been made in enameled brick as well as in face brick, but while these have been used to some extent for outside face work the main line of development seems to have been for interior faces.

Looking back now it becomes easily evident from a study of the statistics that in the earlier days of the listing much of the front brick item was made up of what is today classed as enameled brick, and that the front brick item so identified has given way to what we today term face brick—an improved product from the common brick industry.

It is during the past ten years that we have had the most active development and exploitation of the face brick industry proper, and where the development has been most active is indicated by the rank of the states in importance in this industry. Pennsylvania has for a number of years led in the production, with an output close to two and one-half million dollars a year, or something like a fourth of the total production. Ohio ranks second, Indiana third, Illinois fourth, with Kansas fifth, in quantity, and Missouri fifth in value.

A prominent feature of face brick development during the past ten years has been in the way of variety, diversity of the product both in color and texture. Some years ago there was a great plea made for more color diversity in the face brick business to get originality and relief from monotony, and out of it came eventually so much diversity of one kind and another that it led to some confusion, and finally brought the industry to the problem of classifying and identifying the various offerings in face brick, both for the sake of exploitation and for harmony in price quotations as between different items and different manufacturers. This has been quite a task that good progress has been made in, but which still calls for attention.

The face brick men themselves, through frequent meetings together and the comparison of samples, have eliminated much of the confusion of variety so far as they are concerned. Also the architects of the country have likely been made familiar enough with quite a lot of face brick types, and can therefore distinguish and identify most of the distinctive ones of importance to them. There still remains the building contractors and the general public to educate on this score, however, and it is this which will make up probably much of the future work in this line.

Taking it as a whole, the face brick industry is a pretty well grown up and thriving youngster, fairly well educated and trained up for the future before it, a future that promises to enlarge materially.

Bulgaria, which was the first country to see the error of its way and quit fighting, has a population of approximately five million, about half a million more than Servia. It is an interesting fact, too, that in one of the valleys of Bulgaria is the home of the attar of roses, a place where roses grow and yield essence as they do nowhere else in the world, and in normal times it is the place where most of our attar of roses comes from.

Written for The Clay-Worker.

CINCINNATI BRICK AND BUILDING NEWS.

THE SITUATION HERE is showing an improvement all the time, and the building prospects are such as to offer a great deal bettter aspect to the situation than for some time. Naturally there has been some hesitation on the part of the public to take hold quickly, and there is a feeling that "it is better to be safe than sorry," though to some degree this is an unnatural state of mind. Prices will not be much, if any, cheaper in the months to come, and this should be fully understood by the prospective builders and in this way a greater incentive given to the industry.

The statement for the past three years as issued by the building commissioner here, while not flattering, at least is encouraging when we consider that the conditions have been very much against all kinds of construction work. The month of March for the past three years is as follows: In 1919 there were 1,010 permits issued, valued at $354,805; in 1918 there were 1,062 permits, valued at $358,605; in 1917 there were 1,323 permits, valued at $1,227,365.

The annual meeting of the Builders' Exchange was held recently when the following officers were elected: James M. Dugan, president; Wm. G. Layer and L. H. Nolte, vice presidents; D. H. Startsman, treasurer, and W. A. Ahlbrandt, secretary. The executive board is as follows: General Contractors, W. H. Miller, David G. Devore, Ed. Brockman; Sub-Contractors, Howard Monce, D. P. Bishop and J. Hesterberg; Material Men, Harry A. Huber, Robert Harkness and George Sawyer. There was a strong fight between the Red and Blue ticket, but the Blue elected only one man, J. Hesterberg, he being an active worker in the reorganization of the exchange. At the meeting of the Exchange Judge W. Meredith Yeatman made an address wherein he urged the members to greater co-operation, thereby eliminating the danger of any undue activity of a socialistic nature here.

Strong committees have been appointed by President Dugan for the coming year, so that the organization of the exchange along progressive lines will be the feature of the membership.

Theodore Shoemaker, who for a number of years has been an active worker in the affairs of the Exchange, has been elected an honorary member.

A special course of instruction is to be given the members of the Builders' Exchange with regard to the advantages of the general use of the standard form of contract in dealing with the architect, the same having been reached after the receipt of a letter from John Zuttle, president of the Cincinnati chapter of the American Institute of Architects, which has recommended the use of the same by its members. In order to help along the movement the Exchange will have special copies of the contracts prepared, and these will be distributed free to the members. It has been realized that a standard form of contract cannot be used in public work often, but that its adoption will at least bring about a great reduction in disputes between artchitects, contractors and owners.

Ralph H. Coney, secretary of the Moores-Coney Co., brick and building material dealers, died at the Scarlet Oaks Sanitorium some time ago of pneumonia after an illness of only two days. He was forty-nine years of age, and had been identified with the company since its organization fifteen years ago. He was a member of the Business Men's Club, a director in the Chamber of Commerce and a former director of the Cincinnati Automobile Club. He was a Shriner also. He is survived by a widow and four sisters and one brother, W. W. Coney, president of the Moores-Coney Co. The funeral was held from his home, 3335 Burnest avenue.

The final record in the bankrupt case of the Anders Shale Brick Co., has been filed by Referee Greve in the United States District Court. The liabilities totaled $27,700.84, and the assets were on realization, $17,807.77, of which the general creditors received $1,870.68, which represents a little more than 10 per cent. on their claims.

Two suits have been filed against the Martina Mosaics Co., of 132 East Pearl street, wherein a receiver has been requested and a judgment given upon claims that are said to be due. The suits were filed in the Superior Court by Attorney Samuel Rotter for Cesare Martina, treasurer of the company, and Ottilio Ornello, manager. Martina claims that he was employed from March 1, 1916, to August 31, 1918, at a salary of 10 per cent. commissions, and $38 per month as treasurer, and Orrello says that he had the same agreement with the company, with a salary of $35 per month additional as manager. Martini claims that there is now due him $1,140 as treasurer and $300 for commissions, and Ornello says that there is due him $1,050 as manager and $120 commissions.

A fight is to be made by the members of the Builders' Exchange against the adoption of a bill pending in the Ohio Legislature known as House Bill No. 343, creating the position of State Architect. According to a letter sent in by Secretary W. F. Ahlbrandt, the bill, "if enacted any beneficial results would be problematical; it would certainly permit of great abuses; will not admit of the employment of highly specialized architects in their particular line of work; it would certainly cause partiality in the awarding of construction work and as a whole will restrict that freedom necessary to obtain architectural services and procure unbiased and efficient contractors."

The contracts for the building of the Dixie Terminal Building at Fourth and Walnut streets has been awarded to the Ohio Building and Construction Co., and work has been started on the same. It is said that the building will cost about $1,000,000, exclusive of equipment. It will be the most imposing structure built here in a long time and will be ten stories high on the Fourth street side and nine stories on the Walnut street side. It will connect with the terminal building, where the Kentucky cars will enter, and will be a big help to that section of the city. Garber and Woodward are the architects. There will be considerable brick and terra cotta used in its construction.

Ed. McClure, a builder, has been taking bids on the construction of an eight-room brick residence to be built on the west side of Burch avenue, near Madison Road. Wilbur Firth, architect, prepared the plans.

The Standard Carbonic Co., Sixth and Burns streets, will make some extensive improvements in its plant. The company has purchased some additional ground on Burns street, and Harry Hake, architect, is preparing plans for the building of a one-story brick building.

E. H. Grunkemeyer, architect, is preparing plans for the building of a colonial type of brick bungalow for Frank A. Kelly. It will be 35 by 24 feet.

P. H. Burlingham, president and general manager of the Burlingham Coal Co., will spend about $50,000 in the construction of a new home in the Garden Place Subdivision in East Walnut Hills. The plans are now being prepared and the same will be started in April.

The Cincinnati Cadillac Co. will spend about $140,000 in the building of a store, service station and garage on the west side of Gilbert avenue, about 200 feet south of Elsinore place. Work will be started soon on a three-story fireproof building to contain about 45,000 square feet of floor space.

CINCY.

What are you doing about motor truck delivery?

THE OLD ORDER CHANGETH.

YESTERDAY, the fireman in the power house opened the ash-pit door, let in a blast of air, threw in more coal, the steam gauge popped, and the necessary power was generated. The waste of fuel, even though enormous, was incidental to "keeping up the steam." Today, to conserve the coal pile, and do it by eliminating wasted heat and providing facilities for proper combustion, is of primary importance.

A correct amount of air distributed evenly to the fuel bed certainly goes a long ways toward eliminating waste. A system for controlling the admission of air to the fuel bed is provided with the installation of a Westinghouse Underfeed Stoker.

No air is admitted to the fuel bed except that which is supplied by a forced draft fan. The air is forced first through a main air shaft to several wind boxes located beneath the fuel ebd. These, in turn, distribute the air in correct amounts to the fuel bed.

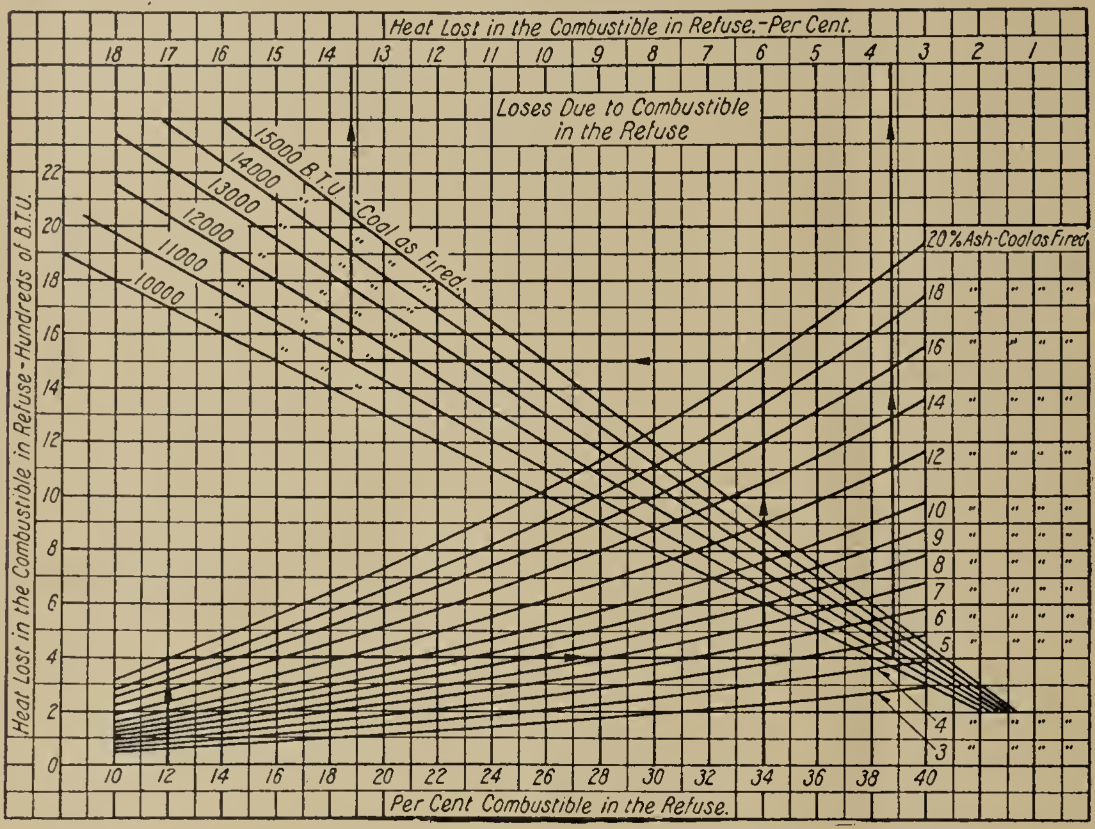


Diagram Showing Loss Due to Combustion in the Refuse.

Separate Tuyere Showing Opening for Air Distribution.

The surface of the fuel bed itself is constructed purposely to facilitate this distribution. Coal troughs convey the fresh coal from the hoppers at the front of the furnace. These troughs are inclined and extend nearly to the rear dumping grates. The fresh coal on its way down the retorts is heated to such a degree that the volatile substances are distilled; then it is forced upwards upon the tuyeres where combustion is completed. These rows of tuyeres, extending in the same direction as the coal retorts, resemble a string of overlapping sea shells. They are corrugated, the openings at their edges forming vents for the admission of air to the burning coal.

The tuyeres are set on wind boxes connected with the wind boxes. The air openings are graduated from the nose of the tyuere to the sides. As a result the whole surface of the fuel bed is constantly fed with minute jets of air, regulated so that the exact amount is always supplied. This possibility of mechanically regulating the amount of air admitted is no mean advantage as proper combustion is thus provided with a heavy or light bed of coal.

Beyond the farthest extension of the rows of tuyeres is a short fuel bed provided with a corrugated surface, which also admits air to the fire from ducts directly connected to the main wind box.

To utilize carbon that often goes into the ash through the front dumping grates, special auxiliary air ducts supply air directly to these grates, thereby burning this carbon before it is dumped into the ash-pit.

Very frequently it is necessary to furnish air to the fire above the fuel bed. This contingency is met by the Westinghouse Underfeed Stoker by air cooled boxes at the front used to support the front awll and also available for an over air supply.

Each one of these fields of distribution—through the tuyeres, the corrugated grate, the dumping grates, and the front air-cooled boxes is regulated by a system of dampers adjustable from the front or the side of the furnace. This means that the fireman is more inclined to make use of them than if they were, as they often are, located in the rear of the furnace. Dampers can be so set that with a thin fuel bed, the air to the lower part of the furnace can be completely shut off. When high capacity is desired, air to the lower part of the furnace, and the dumping grates, can be admitted, making the entire grate surface fuel supporting and air admitting.

The specific results obtained from the system are: a large range of adjustment, saving carbon in the ash; high CO_2 prevention of smoke due to imperfect combustion, flexibility for high peak loads, no clogging of grates, adaptability to different sizes of coal, and a saving of one-quarter of the coal pile.

CITY IMPROVEMENTS.

That the city of Milwaukee will spend at least $2,655,000 in 1919, and possibly as much as $6,000,000, is the statement of Deputy Commissioner of Public Works Percy Braman. The first figure is the estimated value of public buildings, streets, sewers, municipal utilities, bridges and illumination, for the bulding, erection and installation of which funds are already provded. The city may spend an additional $2,270,000, providing new funds are raised by the sale of bonds. Besides this,

$870,000 may be expended for streets, this amount to be paid from tax levies or special assessments. Altogether, it makes up a grand total of over six millions, an amount of great significance when compared with the enforcedly small expenditure of last year.

Written for The Clay-Worker.

MILWAUKEE AND WISCONSIN NEWS.

WITH THE OPENING of the spring building season in Milwaukee and other Wisconsin cities there promises to be ushered in one of the most successful years in the history of construction. A huge gain in building activities in Milwaukee is shown by the records at the office of the building inspector, which already indicate that the first half of the year is likely to show a larger total than all of 1918. The steady gain in building activity is indicated by the following figures for the last three months: January, $154,640; February, $380,553; March, $1,138,108. Building permits for March are nearly three times the value of those for the corresponding month last year. The number of permits issued is 362, representing expenditures of $1,138,108, compared with 108 permits, valued at $445,911, for March, 1918. Operations in building continue to show a large increase for April, in comparison with a year ago. Permits issued during the first week numbered 123, at a value of $151,049, while for the same period a year ago only 66 permits were issued at a value of $68,613.

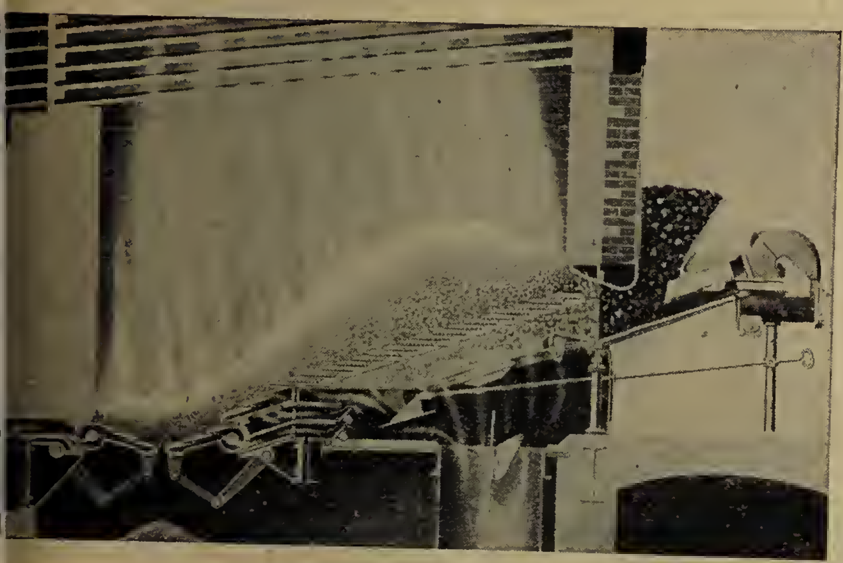
The construction season in Milwaukee is starting quite as auspiciously as supply dealers and contractors have expected. The nation-wide campaign inaugurated to revive and stimulate building promises to produce excellent results. Special attention is being paid in the campaign to encourage the building of homes and apartments, because of the serious shortage in Milwaukee, and, in fact, all over the country, of living quarters, which has made it impossible for many persons to secure flats or apartments. The present increase in construction is marked in apartment buildings, duplexes and single dwellings. The last named type of buildings will undoubtedly feature construction due to the activities of the "Own Your Own Home" campaign. It is pointed out by the government that the most satisfied citizens are those who own their own homes, and these are also least likely to become part of any radical movement such as has disturbed Europe. It has been pointed out that a greater percentage of persons own their own homes in America than anywhere else, and that in this fact may be found the reason why Bolshevism has not been able to secure a foothold here.

To further encourage the construction of homes by the citizens of Wisconsin, a bill has been introduced in the State Legislature at Madison, by Assemblyman Perry, providing an exemption of $500 from taxation for all homesteads. The Perry bill provides that a home in which the owner resides shall be exempted from taxation to the amount of $500.

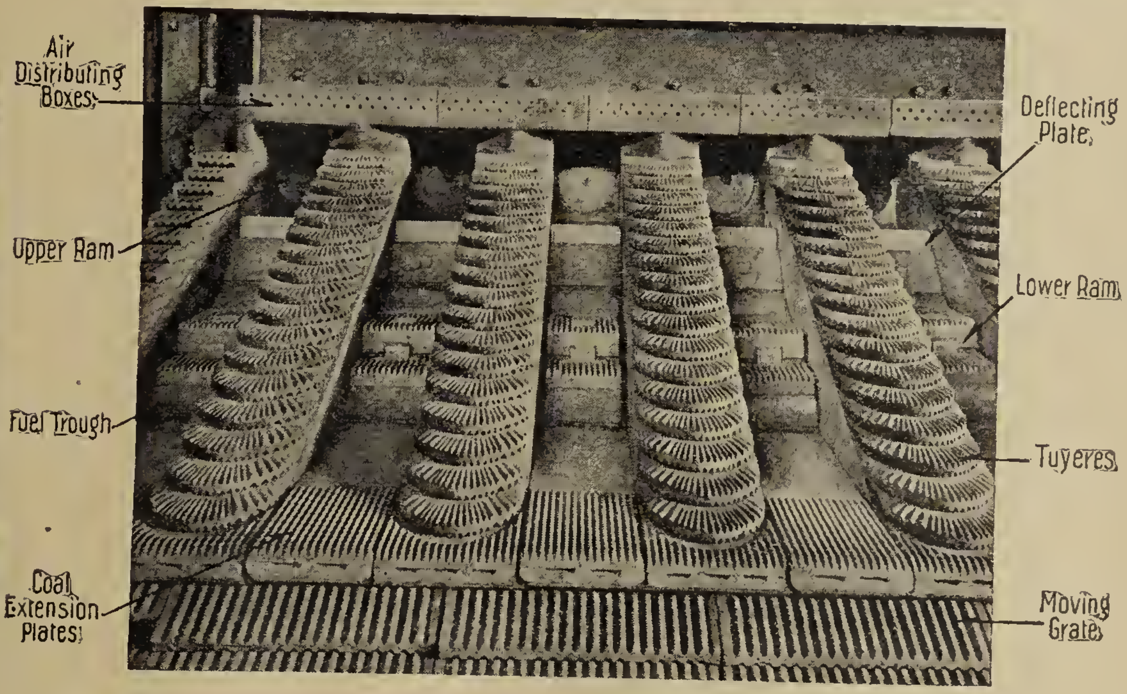
"The idea of this bill is to stimulate home owning," said Mr. Perry, in a spirited debate over the measure. "The idea of our government is the development of good citizens. The home is that stronghold of good, reliable citizenship. In recent years taxes have increased until they have become a burden, and it is a common saying that it is cheaper to rent than to own a home. This bill would ease the burden of the small home owner and build up the citizenship of the State."

Street construction work is again gaining momentum in this State. Contracts for about $250,000 worth of paving have already been let in Milwaukee. The city of Beloit opened bids this month for about 72,000 square yards of pavement, vitrified brick and vertical fiber brick being among the types of pavement on which bids were wanted. A contract for more than 60,000 square yards of pavement at Kenosha was let, in which there was vertical fiber brick pavement to the amount of $189,191. At Waukesha, where contracts are soon to be awarded, R. H. Green, representing manufacturers of Streator, Ill., appeared before the committee to explain the advantages of brick pavement over concrete. He mentioned the propaganda that is being spread in behalf of concrete roads. Regarding the advance of 25 to 50 per cent. of paving block since the beginning of the war, Mr. Green explained that wages had increased 25 per cent. and freight rates 75 per cent. so that there was little hope for any immediate reduction in prices. A number of other cities of Wisconsin are also strongly in favor of laying additional brick pavement this year.

The stimulation of drainage projects in the great Wisconsin agricultural region promises to produce a demand for clay products. While many individual farmers have been purchasing drain tile for use on their farms, some of the larger drainage plans are expected to materialize this season. Seventy-five miles of ditching are under contract to be completed within two years in the Clark and Jackson counties drainage project. This will be started in the spring and comprises about 100,000 acres to be reclaimed for about $200,000.



stinghouse Underfeed Stoker Showing System of Air Distribution.



Westinghouse Patented Tuyeres.

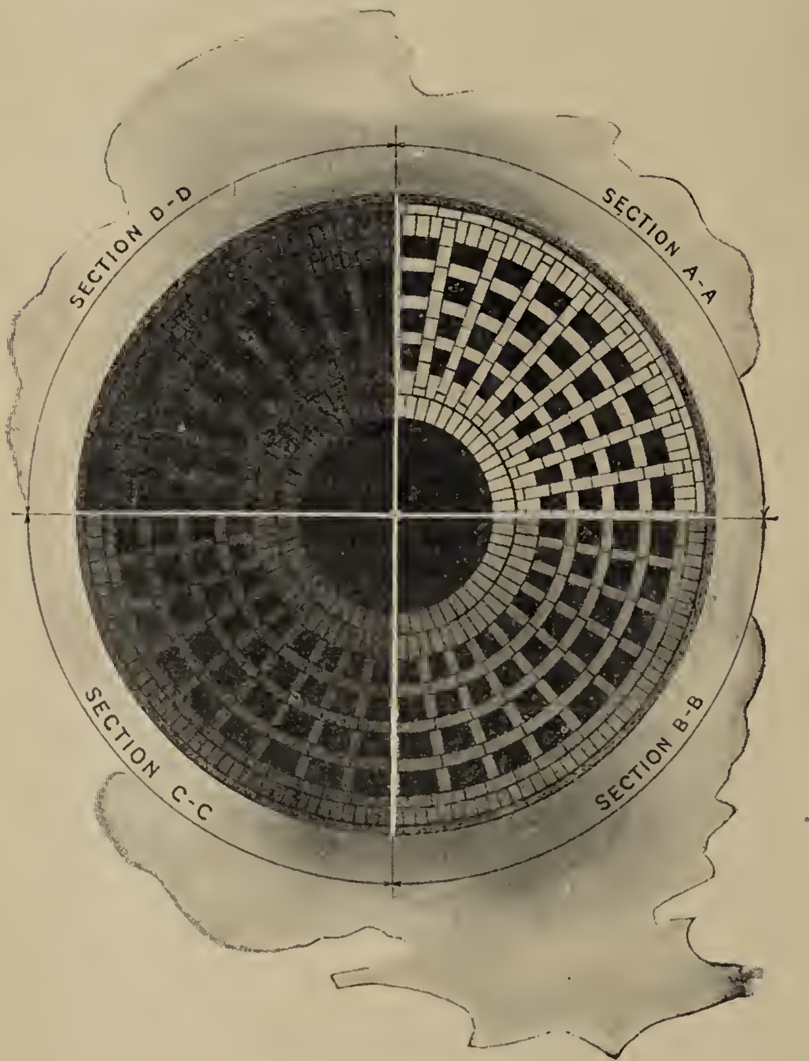
Brick burning should be getting under way for building operations are showing healthy signs of revival.

HOT BLAST STOVES.

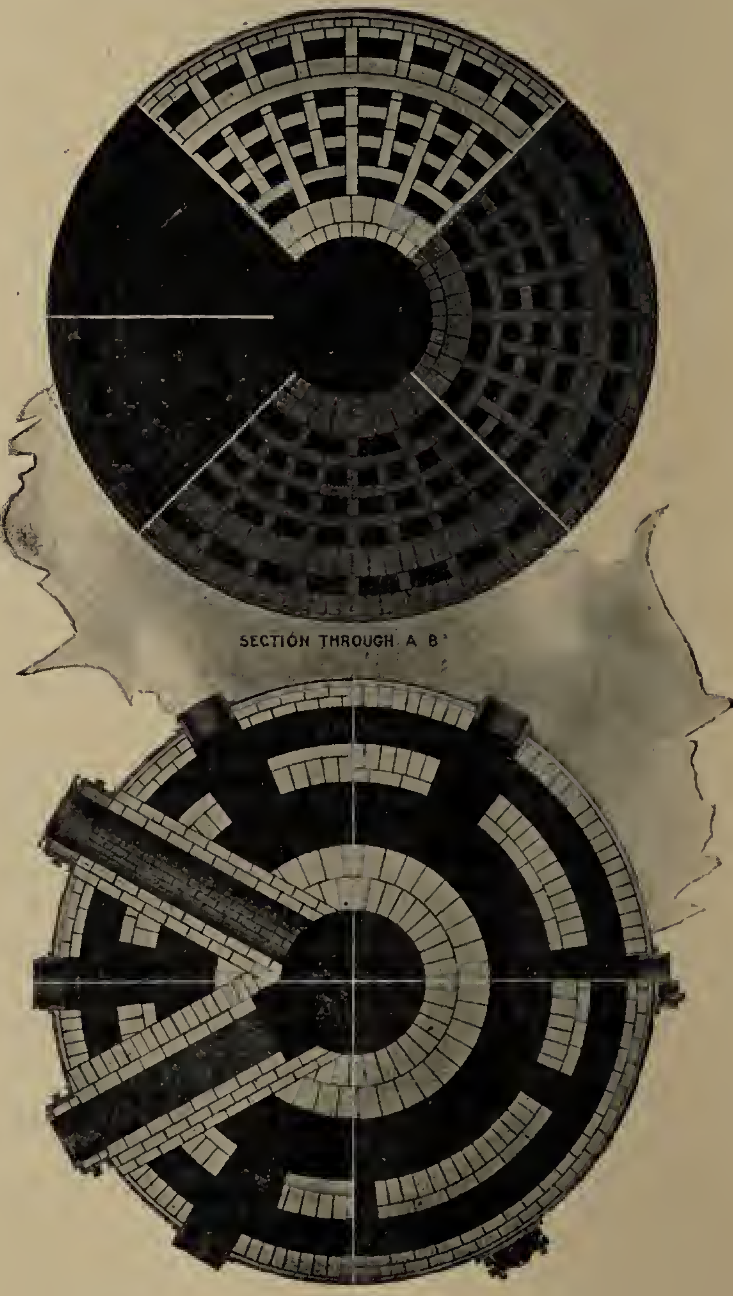
THE STOVES are of as much interest to the refractory manufacturer as the blast furnace itself. Their life is not as vital as that of the blast furnace, but the proper quality of material must be carefully considered. When a blast furnace has to be blown out for repairs it means that the production of iron must stop entirely. When the stoves are repaired they can be repaired one at a time and the rest of the stoves used in the meantime. However, the life of the stove brick is a matter of considerable importance and should receive serious consideration.

The plan shows the general layout of a blast furnace and its necessary equipment. As briefly described in the last chapter, the gases from the blast furnace are drawn through a fire brick-lined pipe known as the downcomer and carried into the dust catcher, where the velocity of the gases is decreased sufficiently by the increase in diameter of the dust catcher, to permit the dust to settle out of the gas. This dust can be removed from the bottom of the catcher as occasion demands. This dust catcher is from 15 to 30 feet in diameter and never gets very hot. There are a good many brick used in its construction, but they do not need to be first quality as far as refractoriness is concerned.

After the gases have lost their dust they are carried on through the four stoves. The supply pipes are so arranged that the gases can be taken through any stove desired. In regular operation three of the four stoves are being heated up by the returning gas and the fourth stove is reversed. After giving up their heat in the stoves the gases are carried on around and burned under the boilers. The steam from the boilers is used to operate the blowing engines. As



Julian Kennedy Stove
Courtesy Harbison-Walker Refractories Co.



McClure Patent Stove

illustrated, the air from the blowing engines is carried around through the main, through the stoves, where it absorbs the heat left in the checker work by the outgoing gases and passes on into the air blast main, bustle pipe, and into the furnace through the tuyeres.

The hot blast stoves, then, are the regenerators for the system, and their efficiency governs, to a large extent, the fuel consumption of the system. Other things being equal, the most efficient stoves will be those capable of absorbing the most heat from the down-coming gases and giving up the most heat to the inblowing blast. The type and construction of the stoves has a great deal to do with this, but the character of the brick also has a great deal to do with it.

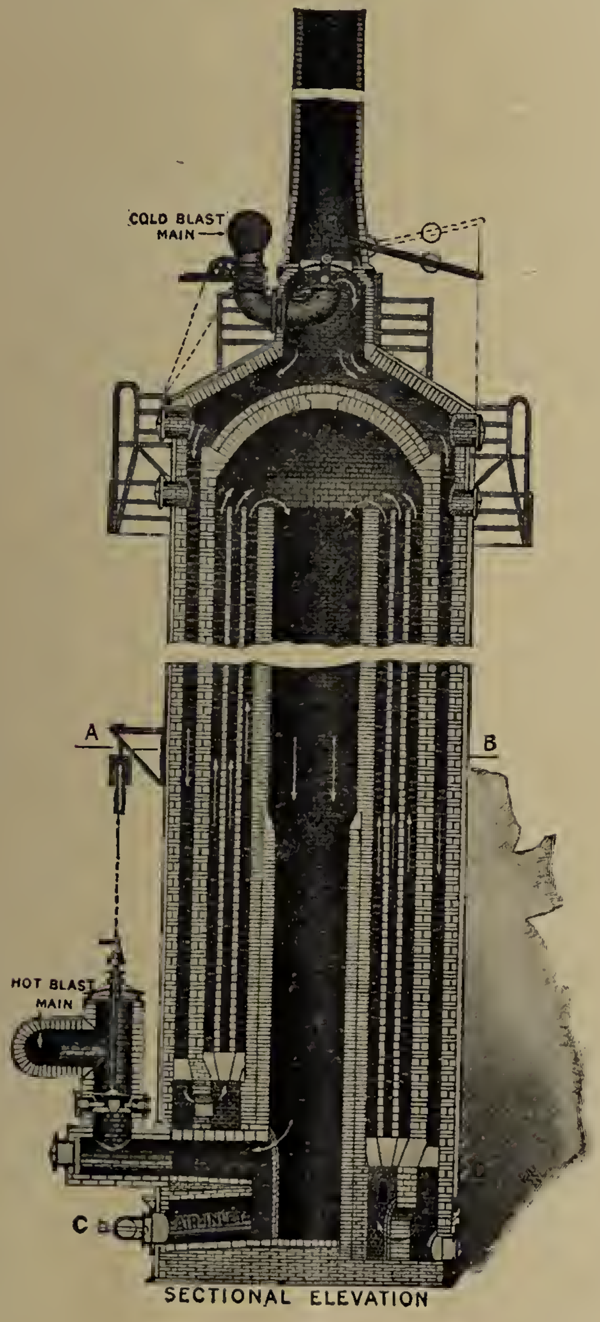
The illustrations show sections of both the Julian Kennedy and McClure types of stoves. There are many other types in use, but these two will serve for illustration. Some types of stoves are higher than the blast furnace itself, being 130 feet, while others are as low as 70 feet. The cross sections show the enormous amount of brick work there is in the furnaces, and it is very evident that the brick have to be well made in order to support the superimposed load. They must also be well shaped and sized in order to properly fit and to permit free motion in expanding and contracting.

The chief quality of the brick must be their ability to readily give up or absorb heat, as the case may be. A porous loose-grained brick will do this readily, but it does not have the proper qualities for holding up the load under continued use, and soon becomes brittle and dead through the absorption of and failure to give off carbon. This bad quality of absorbing carbon is too often overlooked and is a serious point in determining the life of stove brick. A fairly dense number three fire brick, or mill brick, will give better results for this reason than a very high grade, coarse, loose-grained brick. Bricks used in stoves should not vitrify under 1500 degrees F. As this is way below the fusion point of the standard pyrometric cone one, it is very evident the refractoriness is not of serious consideration.

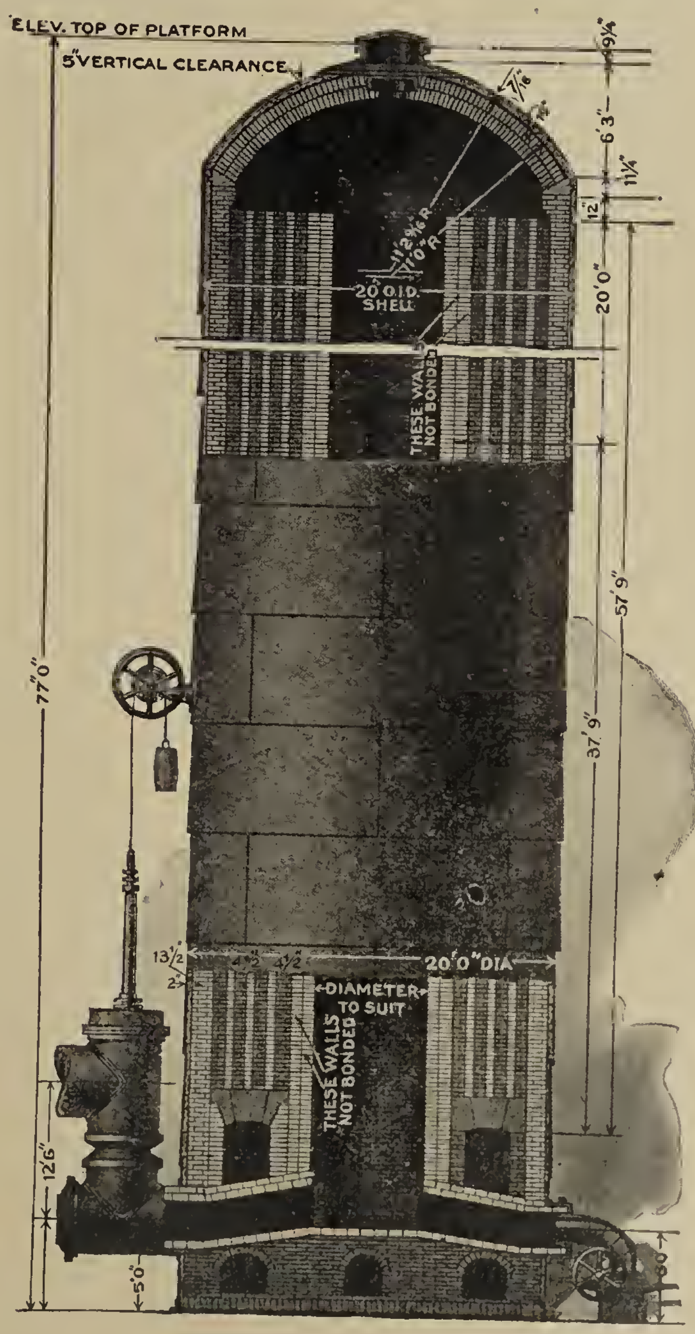
The design of the stoves must be such that the gases meet with as little friction as possible and the shapes of the brick must be such that they have sufficient strength and yet the greatest possible surface for absorption and remission of heat.

Although the stoves operate at low temperatures they must be well designed to take care of the expansion and contraction, which is going to be considerable in a construction 130 feet high in which the flow of gases and temperature is being changed at intervals. The blast air coming direct from the blowers is practically at normal temperature and is much harder on brick than warmer gases would be. It is usual practice to be heating up three stoves while one is being reversed. This means that the stoves are cooled off three times as fast as they are heated up and the contraction of the brick takes place rapidly.

It is evident from the above descriptions that the number of bricks and blocks that are used in the manufacture of iron is enormous. Also that there must be many types of brick in any one installation. The life of brick having to meet the special requirements is not great, even with the most careful handling, consequently orders for replacements are large. On the other hand, properly made refractories, when



McClure Patent Stove.



Julian Kennedy Stove.

given proper treatment, will last for a remarkably long time. One firm produced brick that averaged over 600,000 tons of iron per lining for fifty different linings.

The life of a furnace can be lengthened or shortened by the manner in which it is put into operation after having been blown out for repairs or when it is first blown in. It is very essential that it be warmed up slowly. A great many tons of water have to be dried out of the green brick work before blowing in. The water from the grout alone amounts to considerable. This drying out usually requires about two weeks before the furnace is charged.

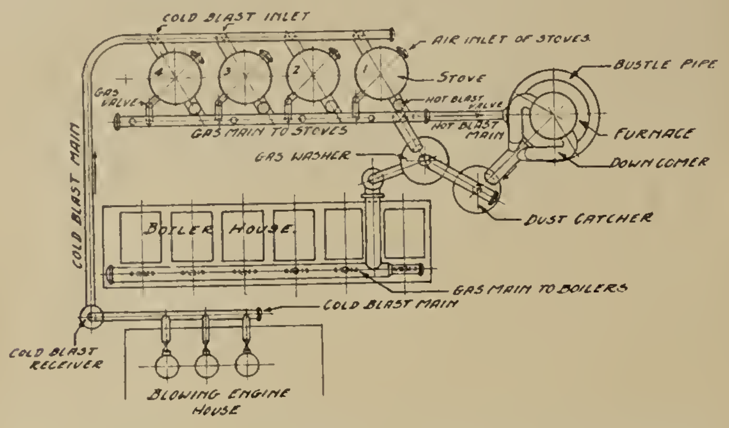


DIAGRAM SKETCH SHOWING PIPEING FOR FURNACE & STOVES.

NORTHWESTERN CLAYWORKERS HOLD MEETING.

THE second annual meeting of the Northwestern Clay Products Manufacturers' Assn. was held on Feb. 27, 1919, at the Pacific Northwest Station of the U. S. Bureau of Mines, University of Washington, Seattle. The meeting was called to order at 10 A. M. by President John F. Keenan of the Denny-Renton Clay & Coal Company, who stated that one of the main reasons for calling the meeting was to consider and enlist the interest of all Pacific-Northwest claymakers in the support of the ceramic work now being taken up in the University of Washington in cooperation with the Northwest Station of the U. S. Bureau of Mines.

There was some discussion as to the advisability of perpetuating the present association, which was originally formed as a war measure, or of organizing a new one of less scope. It was decided that, inasmuch as the states now represented in the association are essentially those that would naturally look to the Northwest Station and the University of Washington for assistance, the present organization be continued under the same name, and its field and activities extended and developed in any direction to further the use, improve the quality or aid in solving the problems met in the manufacture of clay products in the Pacific Northwest states.

A motion was made that the Association go on record in favor of the development of a department of ceramics in the University of Washington and the promotion of investigational work in conjunction with the U. S. Bureau of Mines' Northwest Station; and of offering its assistance and cooperation as a body and as individuals in every possible way.

In relation to the above motion, Dean Milnor Roberts of the College of Mines, stated at some length the purpose and desires of the university in developing the ceramic work, and discussed optimistically the support, in the way of space and equipment, which could reasonably be expected from the university.

F. K. Ovitz, superintendent of the U. S. Bureau of Mines, Northwest station, expressed a thorough appreciation of the importance of the clay industry, outlined the method and plans for carrying on cooperative work with the university and gave strong assurance of the bureau's intention to promote in every possible way the ceramic investigational work. Mr. Ovitz also discussed to some extent the use of powdered coal in industrial furnaces.

In referring to the work of the U. S. Bureau of Mines Ceramic Station at Columbus, Ohio, Ira A. Williams, ceramist in the Bureau of Mines, stated that the proposed ceramic work to be carried on in the state of Washington would necessarily be done in close relation with this station and that the facilities of the Columbus laboratories and the assistance of the chief ceramist and his staff will be available whenever it is desired to make use of them on Pacific Northwest problems. Mr. Williams outlined the proposed equipment for investigational work and for instructional purposes in the university. Some of this equipment is already purchased and will be installed as soon as possible. As important problems worthy of prompt attention when the laboratory facilities are ready, the search for and determination of the qualities of high grade clays not now in use was mentioned, the improvement, by removal of impurities, of fire clays at present in use, and the making of standard tests of finished products. The importance of studying the magnesite of eastern Washington with a view to developing further uses for it as a refractory material, and of locating suitable deposits of foundry and glass sands, was also emphasized.

Dr. H. K. Benson of the Department of Industrial Chemistry in the university spoke of ceramic problems which had been submitted to his department in the past and cited various matters in which the new department of ceramics can be of service to the clay industry.

The original motion was carried unanimously.

The afternoon session adjourned to convene again for a dinner at 6:30 at the University Faculty Club.

Following the dinner, which was attended also by Superintendent Ovitz and by Dean Roberts, Professors Corly, Williams and Saunders of the university faculty, informal talks were made by various members of the organization.

President Henry Suzzallo welcomed the clayworkers and expressed his desire that every possible use should be made of the university and its facilities by the clay industry.

Dean Henry Landes, who is also director of the state geological survey, spoke of the plans of the state survey for doing field work on clays and other ceramic materials the coming season.

Dean Milnor Roberts exhibited and explained a series of slides illustrating trams and types of drilling equipment such as can be employed in various kinds of prospecting work.

The convention adjourned, subject to call for further meetings by the president.

Those present were:

F. T. Houlahan, Builders Brick Co., Seattle, Wash.

Frank Lohse, Lohse Brick Co., Seattle, Wash.

J. B. Watson, Idaho Fire Brick Co., Troy, Idaho.

H. R. Kreitzer, Denison Interlocking Tile Corp., Seattle, Wash.

M. L. Bryan, Denny Renton Clay & Coal Co., Seattle, Wash.

B. F. Cake, Denny Renton Clay & Coal Co., Seattle, Wash.

J. W. Knapp, Knapp Brick & Tile Co., Mt. Vernon, Wash.

A. H. Wetherby, Jr., Standard Brick & Tile Co., Portland, Ore., and Butte Sewer Pipe & Tile Co., Butte, Mont.

A. G. Craig, Far West Clay Co., Tacoma, Wash.

C. B. Mayburgh, Star Brick & Tile Plant, Bayview, Wash.

John F. Keenan, Denny Renton Clay & Coal Co., Seattle, Wash.

Albert Armstrong, Denison Interlocking Tile Corp., Seattle, Wash.

Albert Armstrong, Moscow Fire Brick & C. P. Co., Moscow, Idaho.

Ira A. Williams, U. S. Bureau of Mines, Seattle, Wash.

SEVENTH ANNUAL MEETING OF THE CHAMBER OF COMMERCE OF THE UNITED STATES, STATLER HOTEL, St. LOUIS, MO., APRIL 28 TO MAY 1.

A GREAT gathering of the captains of industry occurs at St. Louis the last week in April. The preliminary program provides for an exceedingly busy time for the delegates. The star performers will be Secretary of Treasury Carter Glass, Secretary of Commerce Wm. C. Redfield, and Edward N. Hurley, Chairman of the U. S. Shipping Board, aided and abetted by Harry A. Wheeler and many of the leading business men of the nation. The purpose of the meeting is clearly set forth in the program as follows:

American Business Readjusted.

Five months ago the business men of America, as represented in the country's Industrial War Service Committees, met at Atlantic City at the call of the Chamber of Commerce of the United States for a reconstruction congress. The armistice had just been signed. Business, which for a year and a half had bent itself to war, faced the task of readjusting itself to the demands of peace. In view of the fact that so little was known of what these demands would be, the task was taken up with unusual courage and confidence.

We are still in the period of readjustment. Business is finding its way into normal channels. There have been difficulties and setbacks. But business is going ahead. Now, with a clearing perspective, it is possible to gain a better comprehension of some of the lessons of the war and to apply more successfully the war's experiences in planning for the future.

There will be another great gathering of American business men on April 29, when the Annual Meeting of the Chamber of Commerce of the United States is called to order at St. Louis. At this gathering there will come together the representatives of the more than 1,000 chambers of commerce and trade organizations which make up the membership of the National Chamber, as well as the chairmen of the 400 Industrial War Service Committees who have formed into a National Industrial Advisory Council.

This meeting furnishes an unusal opportunity for the country's business men to prepare concrete and definite programs to meet the needs of American business through the remainder of the period of readjustment and afterwards. The preliminary program of the meeting shows that the subjects selected for discussion will permit this to be done.

The subjects to be taken up at St. Louis are of the utmost importance just now to business. They include the League of Nations; anti-trust legislation; foreign relations and foreign trade; the disposition and operation of the railroads; construction, disposal and operation of the merchant marine; industrial production and distribution, including the subject of prices.

As on former occasions, the National Chamber is obtaining as speakers the best authorities on the subjects to be discussed. These speakers include Carter Glass, Secretary of the Treasury; William C. Redfield, Secretary of Commerce; Edward N. Hurley, Chairman of the United States Shipping Board; Walker D. Hines, United States Railroad Administrator; Senator Albert B. Cummins, and others. The French Government, at the request of the Chamber, is sending to this meeting Maurice Casenave, who has just come to the United States as head of the French Services which takes the place of the French High Commission. Mr. Casenave is a business man and a diplomat, and has recently been French Minister to Brazil.

At this time, when the country is called upon to frame policies that so vitally affect business, it is important that business men make their viewpoints known. And the meeting at St. Louis, coming as it does on the eve of an extraordinary session of Congress, offers an unusual opportunity for business men to advance suggestions with respect to the future relations between government and business, and the future policy of the government as respects the encouragement of business.

OBITUARY.

Death of Philadelphia's Oldest Brick Man.

WE announce with regret the death on April 4 of Edmund Webster, a retired brick manufacturer of Philadelphia, at the advanced age of ninety-one, at Mount Dora, Florida, where he had been since January with his wife and daughter. He was buried on Friday, April 11, at 2 p. m., at the Friends' Meeting House, Fifteenth and Race streets, Philadelphia. Interment was private.

He was born in Whitemarsh, January 31, 1829. His ancestors came to this country with William Penn. His father, William Webster, established a brickyard at Twenty-first and South streets in 1835, and in 1850 Edmund entered the business. Not long after the death of his father the location of the plant was changed to Thirtieth and Tasker streets, where it is today. In 1908 Mr. Webster retired from active participation in the business and turned the reins over to his nephew, Andrew D. Keyser, who is now in charge of the company. The firm is now known as Webster & Keyser.

He was a member of the Union League, the board of managers of Swarthmore College, a director of the Southwestern National Bank, director of the Lumbermen's Insurance Company, director of the City Institute, charter member of the Builders' Exchange of Philadelphia, and one of the organizers and directors of the Logan Trust Company of Philadelphia. Mr. Webster was a birthright member of the Society of Friends, of which he was treasurer at the time of his death. Besides his widow, he is survived by two daughters, Mrs. William C. Lowrey and Mrs. Edward L. Buchey, of Ardmore, and a sister, Mrs. James D. Keyser, of Merion.

Arthur D. Rogers, of Boston, Answers the Final Summons.

The members of the N. M. B. A. and allied organizations will learn with sincere sorrow of the untimely death of Arthur D. Rogers. For many years he was a conspicuous figure at our annual gatherings. His affable nature and suave mannerisms made him a very pleasant companion. He gained fame among the clay craft by his forceful advocacy of art in brick architecture. Keen and clever minded, he saw the rich field that the architectural fraternity was neglecting, so he founded "The Brick Builder" (now the "Architectural Forum"), and for many years made it a very influential magazine. Through its pages he instigated a series of competitions and thereby interested in brick architecture the younger men in the architectural profession. The Brick Builder was unique in many respects and is a monument to his originality. The Boston Society of Architects adopted resolutions in his memory, which we quote in part.

"His genial personality and uniform courtesy won for him the respect and friendship of all with whom he came in contact. In his death many architects throughout the United States will feel a sense of sorrow, and the profession, as a whole, a loss not easily retrieved."

Pioneer Wisconsin Brickmaker Passes Away.

Horace N. Fowle, pioneer resident of Wisconsin, and the first white child born at Oak Creek, Wis., died April 4 in his home, 945 Hawthorne avenue, South Milwaukee, Wis. Mr. Fowle established a brick manufacturing plant at Oak Creek in 1870, which he conducted successfully until a few years ago, when he retired from active business. He was born February 22, 1837. His father, John Fowle, an Englishman, purchased 640 acres of land at Oak Creek from the government in 1835. The son engaged in farming on this land previous to establishing the brick manufacturing business. His wife and eight children survive.

A BADGER.

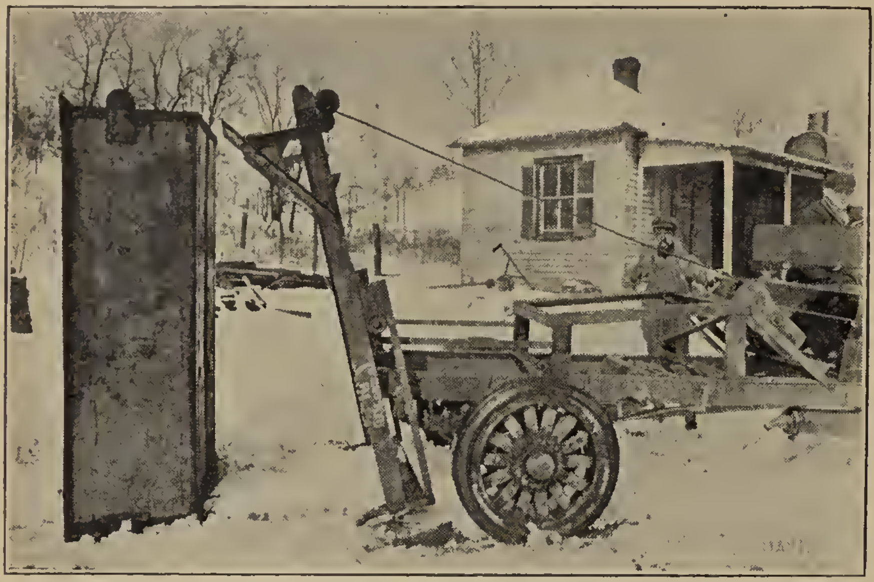
LABOR ECONOMY.

The Clay-Worker in this issue inaugurates a new department which will appear from time to time setting forth labor saving devices and new ideas which if adopted will greatly conserve time and labor on clay product manufacturing plants. This first article is devoted to a labor saving device in the delivery end of the business.

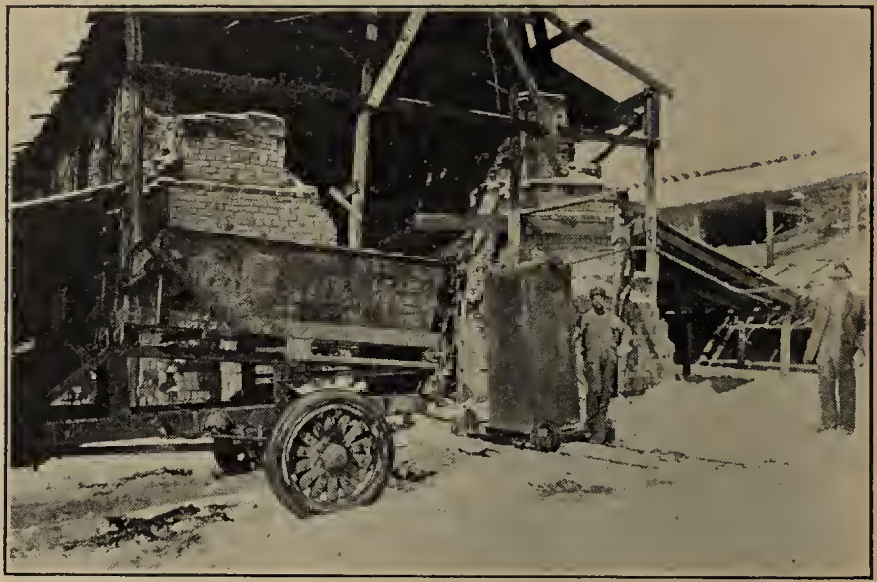
THE MOTOR TRUCK is here to stay, its advantages in local and county deliveries is well recognized yet its one great handicap in the past has been in the number required and the loss of time and breakage in emptying Then too, the motor truck has been an expensive proposition so far as first cost was considered but this was more than equalized by the trucks saving in money which would otherwise be expended on freight rates or extra time required in teaming.. With the labor scale much higher today than ever before the delivery end of the business needs careful consideration especially in the brick game and trucks are indeed essential.

The clay products industry today is much indebted to R. A. Fontaine, the inventor of the carrier body employed by the American Truck and Body Company of Martinsville, Virginia, which is reputed to eliminate breakage and save 50% in labor generally employed with an additional 50% saving in the usual time required.

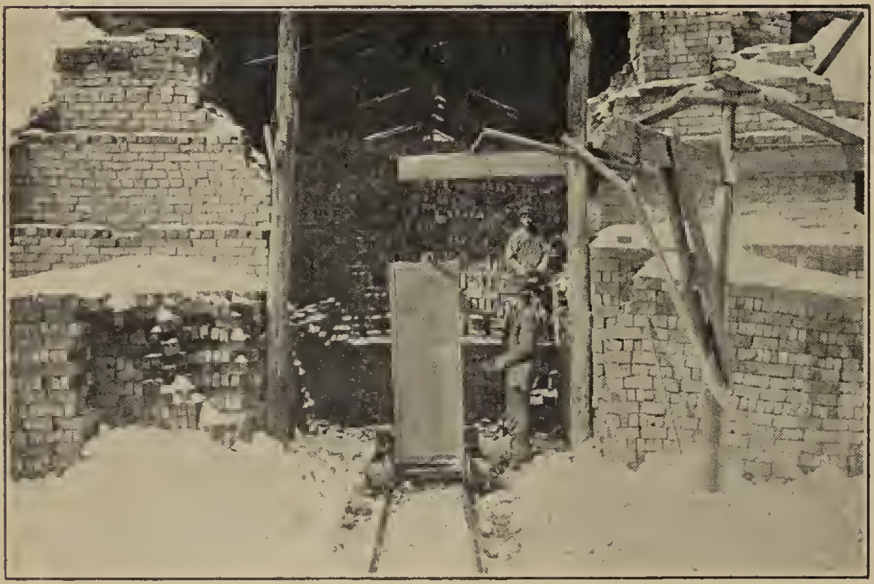
The illustrations shown herewith, give a progressive picture of the work of this carrier body. The truck required is not expensive and the carrier body with its load is sufficiently light to make deliveries over rough roads rapid and without any loss in breakage. The carrier body holds 650 standard size brick. The empty body is placed on end in the kiln and the brick backed in same by hand in the ordinary way. The truck then picks up the load automatically in about one minute's time and can deliver the brick to the job in the shortest possible time, the load of brick deposited automatically on the job in regular units occupying one tenth the usual ground space and without any breakage loss. The loading and unloading device and body combined is no heavier than any ordinary truck body; thus one can see how advantageous this is in rapid deliveries. As many bodies as desired can be employed. Two bodies being sufficient for one truck, one body being filled while the other is delivered.



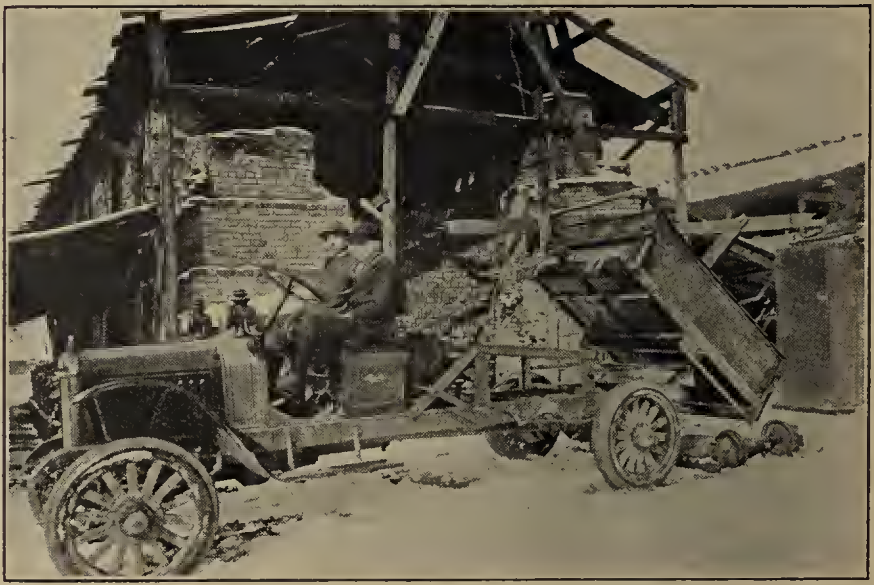
The Carrier Body.



Carrier Body Ready for Truck.



Carrier Body Being Filled at Kiln.



Truck Picking Up Carrier Body.

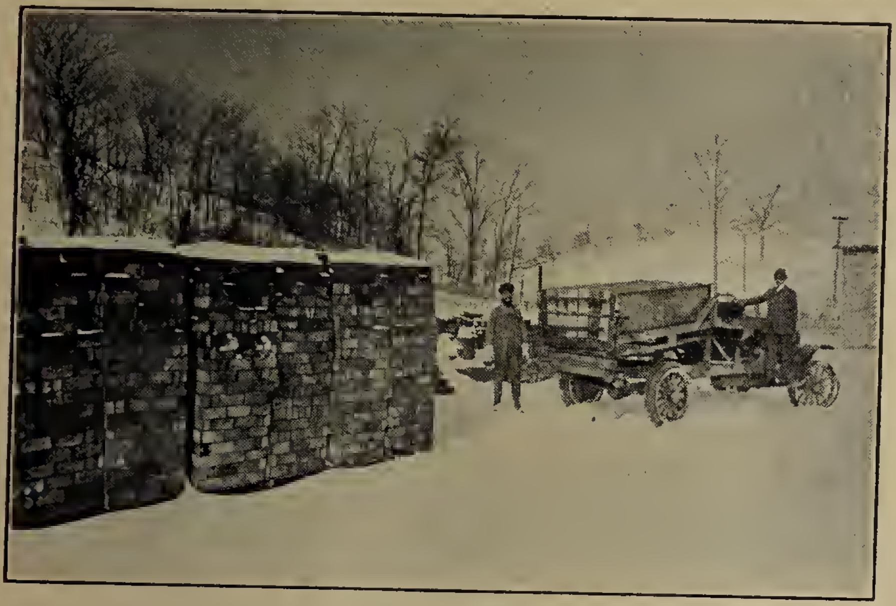
This device can be used just as advantageously from storage sheds, wharves, cars or gravity carriers as from kilns. The body may be picked up by an elevator, crane, derrick or automobile truck with no danger of mishaps or breakage of brick. The brick are so clamped at the bottom of the back that they stay secure in the body until the clamp is released after which the body may be removed from the back by hand, derrick or truck. In some cases especially in the handling of face brick, it may prove advantageous to leave or store the brick in the bodies. If desired, they can be placed on railway cars with derricks or cranes and unloaded in the same manner, to again be picked up by trucks and delivered whenever desired. When the brick are taken direct from the plant to the building site, the loading body delivers the brick in an upright pile, the empty body being returned for another load.

As stated before, it is claimed that by this method of handling brick there is a saving of fifty per cent in labor and a similar saving in time and increased capacity in delivering items of considerable importance to even a small capacity plant.

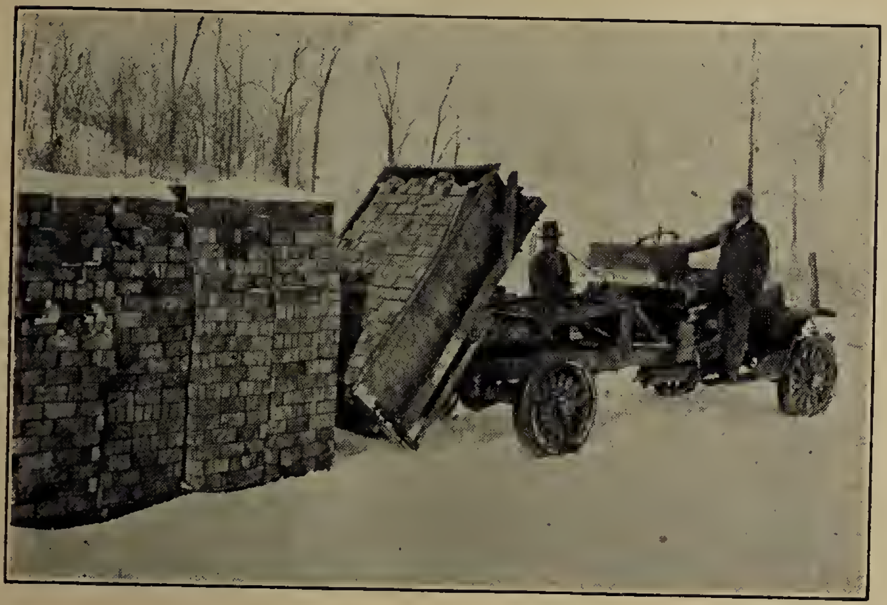
The American Truck and Body Company of Martinsville, Va., are manufacturers of this carrier body, as well as of trucks adaptable for this purpose.

WILD CATS.

It is a matter of history that every era of prosperity hatches out a crop of wild cat promoting and financing institutions, of fly-by-night organizations of one kind and another to help separate the credulous from their money, usually with a seductive bait in the form of a word-painted opportunity to make more money easily. Since the present era of prosperity is marked with a greater influx of real money into this country than ever before it has naturally generated a bigger crop than ever of wild cat promotion schemes. They include automobile and motor stocks as a new element, but there are many of the old familiar oil and mining stock schemes.



Note Evenness and Compactness of Brick Units.



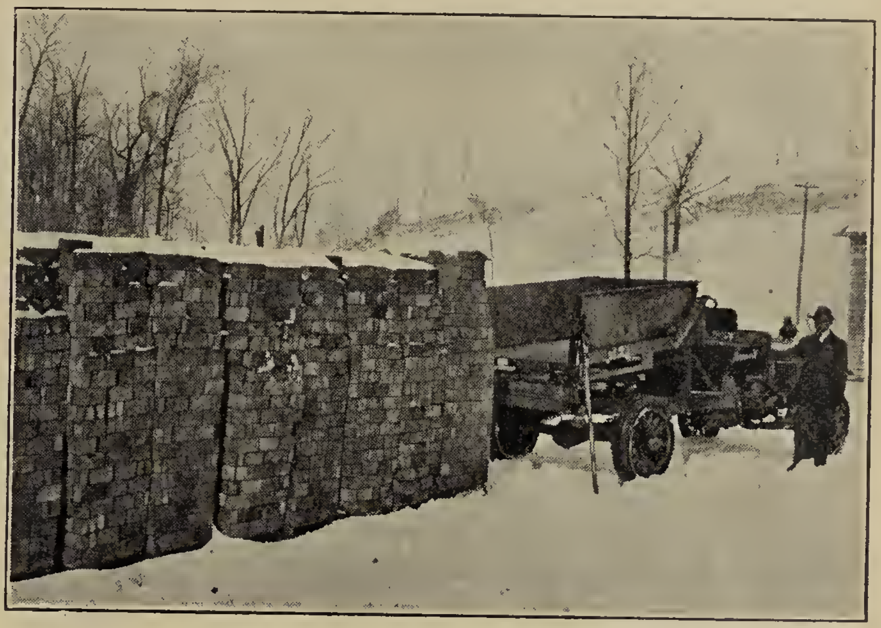
Automatically Emptying Carrier Body.

It is a peculiar fact, too, that, notwithstanding the lessons of history, many are still comparatively easily tempted to part with their money in response to seductive letters and telegrams from wild cat promoters. There will be an aftermath when legitimate business promotion will pay the penalty as well as many people mourn departed funds. This is, perhaps, the most deplorable feature of wild cat activity. It acts as a handicap to legitimate business promotion. Some day maybe we will learn to safeguard ourselves with some form of protection against temptations of this kind. Meantime, the wild cat promoter is flourishing and many people are parting with good money that will be followed later by regrets.

DRAINAGE AND SWAMPS.

Even before Secretary Lane of the Interior Department got to mapping out his program of land reclamation for the returning soldiers, the subject of swamp drainage had come in for a pretty good share of attention. So now that we have the added incentive of the Lane plan for soldiers there should follow some active work in the way of swamp reclamation through drainage.

Figures compiled by a committee on statistics for the Chamber of Commerce of the United States a few years back indicate a total of 75,000,000 acres of swamp land in the country that could be reclaimed for agriculture through drainage. No doubt much of it will eventually be drained and reclaimed regardless of agitation on the subject, but if agitation will make for more headway, let us agitate.



Truck Delivering Brick to Stock Pile.

The reclaiming of these swamp lands will not only mean useful employment for the time being, and a great addition to our agricultural resources, but there is another reason, a health reason that has been brought out heretofore. It is swamps and the mosquitoes which hatch from them that is the cause of malaria. Once we are rid of the swamps through drainage we are also about rid of a very trying affliction. And it is well for the clayworker interested in drain tile development to keep this point in mind as one of the good arguments to be brought forward in favor of drainage—it makes for better health conditions as well as bigger crops.

GOOD OUTLOOK AT NASHVILLE.

The Nashville Builders Supply Co., at the foot of Church St., Nashville, were seen recently. They report a very good outlook for spring and firm market on sewer pipe, sand, lime and fire brick, which they handle in connection with other supplies. They operate boats along the river for sand purposes and last season furnished the government a great deal of sand and gravel for the powder plant operations.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Belated Compliment.

My dear Randall:

I have been away from home so much of the time of late, and have just been able to look through the N. B. M. A. convention number of the Clay-Worker.

I hardly know whether to say that the proceedings of the N. B. M. A. as published, give great credit to the Clay-Worker or that the Clay-Worker gives great credit to the manner in which it handled the meeting. I think both justify the commendation.

Very truly yours,

WILL P. BLAIR.

Vice-President National Paving Brick Mfrs. Assn.

Pays Tribute to Old Friend.

Dear Friend Randall:

I am home O. K. from my trip west, and really think it did me good to get away even for a little while. I enjoyed meeting with my old friends. Old friends are getting scarcer all the time—Mr. Edmund Webster, Philadelphia's oldest brickmaker, is to be buried tomorrow. He was a fine man, one of the kind whose word could be depended upon. I saw him only a short time before he went south, and sent him a card on his ninetieth birthday, which he celebrated January 31.

We are doing some business and the plant is now running all the time. Kind regards to all.

Yours as ever,

Philadelphia, April 10. WILLIAM CONWAY.

N. B. M. A. and Clay-Worker Good Combination.

My Dear Randall:

Enclosed you will find my check for ten dollars in payment of my N. B. M. A. dues, and also I added $5.00 extra to this check in payment of my subscription in advance to The Clay-Worker.

Friend Randall, send your Clay-Worker right along, I can't do without it. It is what I want; it is great company to me. It is one among the best.

Please credit this amount accordingly and kindly let me know when my advance payment of subscription expires.

Am sorry that I could not be with you at the annual N. B. M. A. convention, Pittsburgh, but I was not well enough to leave home. Know you had a dandy time.

With best wishes

Yours very truly,

THOS. SIMPSON.

MESSAGE FROM N. B. M. A. MEMBER IN ENGLAND.

Friend Randall:

I duly received yours of the 27th ult., and also your other particulars of the N. B. M. A., which I was glad to get. I have been going to write times out of number, but it is surprising how easily it is to let matters of this kind wait till another day, so that here I am with my membership to the N. B. M. A. over a month behind time. Let it be understood just the same that I am a member as long as there is anything for a member to hang on to in the N. B. M. A., and if you don't get my check on time remember you will get it as long as I am on the earth and can raise the wherewithal to do it with. So much for that.

At the time of the convention I was attending as representative of our council the National Housing Conference in Leeds. The government here is going to build many thousands of houses. For the last eight or nine years very few houses have been built here, on account of the way the government here commenced to tax property, they scared the private builder out of the business altogether, so that with the conditions caused by legislation and the war it is claimed we are 300,000 houses behind. Well, I don't know that we are that many, but there is no doubt we are behind, since there has been no building of any kind only for the government since the war started, and every cottage built by any one since that last act was passed in 1908 or 1909, don't know exactly the year, and the people simply can't get a house for either love or money, and they have only the government and a few agitators to thank for it. Leeds before the war had 7,000 empty houses in the city alone. Today it is said there is not a single empty house to be let. The council that I am a member of built sixteen, and built them of semi-dry concrete blocks. The houses look well, are nicely arranged inside for this country, but say, we had a storm some time ago and the dampness came on the like of which I never saw before. On most of the ceilings it came in from the walls to the center of the room. The people, of course, got a little rattled about it, but because it was government money they stood it, and are doing today. I could tell you a lot about concrete houses, but am afraid I should be taking up too much of your time and space.

The reason I mention this matter is, I notice that you are expecting some government aid for building. This is all right if it is got for some public building or other, but if the government is going into the housing scheme they are up against it. The government here has simply killed the private builder, and building materials are more than double what they were before the war. I well remember before coming to the states we thought we were doing well to get $5.50 per 1,000 brick, whereas today those same size brick cost $12.50 at the yard. This is, mind you, in both instances, and in order to get enough houses for the people to live in the government has to subsidize them, and to meet this subsidy the taxpayers here are going to have 2 cents on the £1, or $5, to help pay the rent of the fellow that lives in those houses. I have no objection to this extra tax, if this money was spent to build houses for the very poorest, but I do object to paying it for the fellow that is earning from $20 to $50 per week.

With best wishes and will write more later.

Yours very truly,

Slaithwaite, England. H. HAIGH.

A Protest Against the Use of Adobe Buildings for Government Troops.

Editor Clay-Worker:

I am enclosing herewith a clipping from the El Paso Morning Times of even date, to the effect that certain officers of the United States Army are favoring the erection of adobe buildings to house the soldiers of the United States Army.

Experienced men here agree to the unfitness of adobe for any form of human habitation. No matter how carefully the construction is supervised, adobe, in time, becomes unsafe, is unsanitary and a breeder of vermin, as well as entailing un-ending expense for maintenance and repairs.

The city of El Paso, through its health board and building department, has demolished hundreds of adobe buildings in the interest of public health. Even the medical department of the United States Army, by threatening to remove troops then located near the smelter, forced the county authorities to condemn more than half the adobe shacks adjacent to that camp.

While it is very unbecoming of Americans to refer to what they did during the war I know that you will pardon the reference as it is necessary for the purpose of comparison. Our company borrowed $15,000 with which to purchase Liberty Bonds and also contributed liberally to all war work activities. The employes of the company did all that could be expected of them.

The Government, through the War Industry Board, virtually closed our plant with orders regulating the use of fuel and finally forbade building construction, thereby causing great financial loss to us, all of which we bore philosophically, believing that no sacrifice was too great to "help win the war!"

We looked forward to the day when victory would crown the efforts of our people and to the time when we could resume operations at our plant and re-employ the many young men who had left us to give their services to the country.

Now that the "War is Won" we find some of the representatives of the same government that asked for "our money, our lives, our all, to save civilization," placing the United States in the position of the benighted peon, "too poor to live out of the dirt," and degrading the building business to the low level of the adobe.

If these buildings are built of adobe the only beneficiary in labor circles will be "alien labor." The American artisan and building mechanic, with an honorable discharge from the Army or Navy, will return to his home. In his quest for work he may visit the Fort to find that while Uncle Sam needed him for "Cannon Fodder" he was a hero, but now that peace is at hand his former means of livelihood has passed to "aliens," many of whom, in the days prior to June 5, 1917, hurried across the border, or to those that remained behind and dodged their duties to this country by claiming exemption on the ground of non-citizenship.

During the reconstruction period it is the plain duty of the Government, in planning betterments, to consider the welfare and comfort of the American soldier and American workman, otherwise they may, after due reflection, agree that their sacrifices of the past two years were in vain, and after but a brief period of enforced idleness, would become ardent followers of the advocates of Bolshevism.

Brig. Gen. Marshall, Chief of Construction Company 53, Washington, D. C., has charge of this work. May I ask you to vigorously protest against the substitution of adobe for burnt clay products?

Very truly yours,
INTERNATIONAL BRICK COMPANY,
By J. F. Driscoll, Asst. Secy. Treas.

'TIS AN ILL WIND.

Going out for the morning, Mr. Marks left the store in charge of his son, Sidney.

"The cost of each suit is marked on the price tags by dots," he explained. "Eight dots is eight dollars; nine dots is nine dollars."

Mr. Marks returned in an hour. "Well, Sidney, how did it go?" he asked.

"I sold a fine suit, papa," replied Sidney, "for twenty-three dollars."

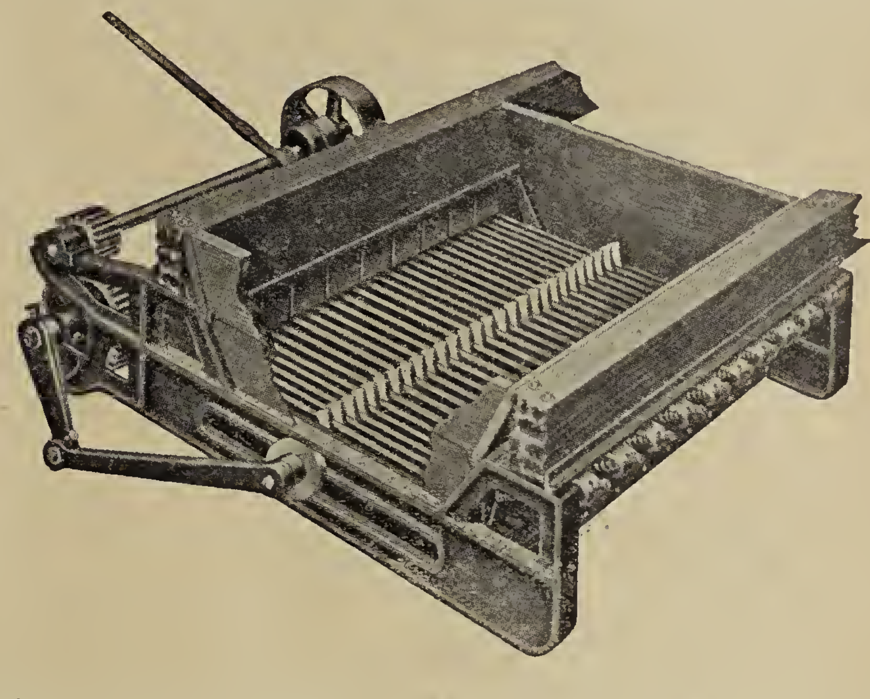
"Twenty-three dollars! For goodness sake! We ain't got a suit in the house that costs more than twelve. Where's the tag?"

Sidney produced the tag. The old man gazed at it a moment, dropped into a chair and murmured, "God bless the little flies."

BERRY STONE SEPARATOR, PULVERIZER AND FEEDER.

DURING THE CONNECTION of the individual members of our company with the clayworking industry, extending over a period of thirty years, one of the hard problems, unsolved until today, which we have experienced hundreds of times over, encountered in certain clay plants, has been the perfecting for installation and use of a machine to prepare for the manufacture of clay products, soft surface clays, alluvial or glacial clay deposits which are combined with lime and gravel stones ranging in size anywhere from that of a pea to as large as a walnut, egg, or even that of a man's fist and larger. In fact, that is a condition of the clay in hundreds of plants throughout the United States for which no one has been able to bring out anything in the equipment line proving to be an absolute success, either in an individual machine or a combination of machines, whether it has reference to conical rolls, smooth rolls, equal rolls, disintegrators, patented clay cleaners, etc. Many of these plants, by reason of the stony clays, have not only operated at a loss, but a majority of them have ended in complete financial failure.

We have given much time and attention to this problem during many years and have finally solved it in the Berry Stone Separator, Pulverizer and Feeder, in which clay dug from a bank containing lumps varying in size, together with roots, stones and other heterogenous material is mechanically treated to disintegrate the lumps, remove the roots and stones or other irreducible content, and prepare it for the making of brick and other clay products.



The machine is very simple and durable for the purpose, and into which the mass of clay and other material may be delivered by cart or dump car, and from which the clay is discharged in a controllable stream in a pulverized condition, free from stones, roots or other irreducible materials, which go out as waste, leaving clean clay ready for the next operation. The machine applied to the preparation of clay as above described becomes at once a stone and root separator, a pulverizer, a disintegrator and a feeder.

In support of the evidence above presented, this machine is today in practical successful operation and has been for a period of two years. This machine has solved a most serious problem and many clayworkers who have stony clays to handle should be intensely interested in this new piece of equipment for the clay plant, as it will help to make better ware, reduce maintenance costs and bring a more profitable operation. For further particulars address The Manufacturers Equipment Co., Dayton, Ohio.

SIDELIGHTS ON MEN IN THE TRADE.

(By William H. Burquest.)

Music Is His Fort When the Day is Done.

"And the night shall be filled with music, and the cares that infest the day shall fold their tents, like the Arabs, and as silently steal away."—Longfellow.

THIS choice poetic sentiment has all the ear-marks of Simon-pure veracity about it. There is no hot air about the poet's lines. Longfellow was strictly on the job when he penned the utterance, and most of us agree with him on this score, for it certainly is true that cares—at least many of them—vanish under the charm and spell of music.

The above vagrant thoughts came stealing along in orderly array, and fixed themselves firmly in the journalistic cranium after a little chat with an eminent and elegant representative of brickdom, Herman L. Matz, vice-president of the S. S. Kimbell Brick Company, of Chicago, extensive dealers in all kinds of face brick.

Herman L. Matz, Chicago, Ill.

The average observer of men and things would little dream that brick and music could be merged successfully or harmoniously. Doubt it if you must, but Matz has accomplished the feat. He can sell brick to beat the band, and he can likewise beat the band, playing Chopin's melody in F, or any other classical strain.

Herman L. very often drives away the cares that haunt a gentleman of brickdom by filling his nights with music—he sits down to his own piano of an evening and caresses the keys in a way that makes the air fairly vibrate with harmony.

Matz has wrapped up in his aggressive and efficient make-up, a decidedly keen ear for music, and on frequent occasions he has obliged and delighted his friends through his ready proficiency with the piano keys.

Mr. Matz was born in Chicago on February 2, 1859. He received his early education in private schools abroad, and later he graduated from a Chicago high school in 1876, and then from Williams College in 1880.

In 1886, during the month of October, when autumn leaves were gently falling, he suddenly realized one day that he was the victim of an arrow-wound—one of Cupid's sharp weapons had pierced him to the heart, and poor fellow, he had to call on a doctor (of divinity) to heal the wound. The Rev. Doc did that little thing by the utterance of six solemn and vital words, "I pronounce you man and wife." This binding expression was duly delivered on October 12, 1886, at Portville, N. Y., and the lady was Miss Elizabeth Dusenbury, of the latter city.

The Walter Wood Mowing and Reaping Company, of Hoosick Falls, N. Y., employed Matz as its purchasing agent in 1882-7. This was his first real experience in business life. Severing his connection with this firm, we soon find him taking an active interest in architectural terra cotta, for between the years of 1887 and 1891 he held the office of secretary of the New York Architectural Terra Cotta Company.

Between the years 1892 and 1900 he was connected with the Hydraulic Press Brick Company, of Chicago. During this period he rendered very efficient service for this concern. Since 1902 he has been the vice president and director of the S. S. Kimbell Brick Company, of Chicago, wholesale and retail jobbers of face brick.

Matz is a college man. He is a member of the Phi Beta Kappa Society, and the Alpha Delta Phi Fraternity, and on questions of national politics he is an Independent, but there is a noble tendency at times to favor the Republican ticket. Matz is a well known clubman in and about Chicago. He is a member of the following clubs: The University, The Builders', The Twentieth Century, and the Chicago Architectural clubs.

His esteemed father, Otto Matz, was an architect of prominence in Chicago in 1854. During the Civil War the elder Matz served as an engineer on the staffs of three generals, Grant, Fremont and Halleck.

Herman Matz is today one of the progressive live wires in the western face brick game, who has forged to the front by dint of high business principles, splendid personal qualities, and a capacity for hard and efficient work.

CUBA BUILDS.

One of the most interesting foreign trade reports comes from Cuba where the prosperity that has come as a result of the active demand and higher prices for sugar has inspired the people with a great desire for more homes and better homes. The laborers who work on the sugar plantations are no longer satisfied with the flimsy thatched structures of former days, but want substantial homes which they are building of wood. Clerks in business houses are buying suburban lots and building homes so as to get out of the close stuffy rooms of Havana and the business men themselves are building suburban residences.

The more pretentious of these buildings are mostly of brick and many of the more modest homes ought to be of brick, if the brick boosting game were only in active shape down there. The situation at present seems to offer on the one hand some opportunity for face brick business for those who are in a position to make shipment to that country, and on the other hand it should present a splendid opportunity for brick machinery men to go into the territory and encourage the development of brickmaking and the exploitation of burned clay down there as the ideal building material. Cuba has the building desire and has reached that point in its development where both it and the clayworking industry should profit by having the right kind of counsel and being impressed with the knowledge that brick is the best of all building material.

Going back to pre-war days does not give us a true guide for post-war activities, for we are going forward, not backward, and it is a new deal all around, with newer and bigger ideas. It's a new era in which we should set up some new records.

BY THE LIGHT OF THE KILN FIRE

Direct Fuel Economy.

THERE ARE MANY WAYS in which fuel may be saved if firms are prepared to go to the necessary trouble.

A roof over the kiln will keep the coal dry; it will prevent rain wetting the roof or crown of the kiln and entering through any leaks or openings therein. The direct saving in fuel through this simple means has been found to represent fifty pounds of coal per thousand bricks in a kiln burning four and a half hundred pounds per thousand during the winter months. A further advantage is gained by the burner being protected from the weather whilst at his work.

A lean-to roof around a continuous kiln procures several savings. It prevents the bricks being damaged by rain when taken from the dryer or machine to the kiln; it keeps the base of the kiln dry and the soil warm. With a little arrangement it may be converted into a dryer for use when the ordinary drying sheds are full. Each of these uses enables fuel to be saved though the difficulty of providing a suitable erection is very great at the present time.

A smaller shovel is a peculiarly simple means whereby coal can be saved, especially in top-fed continuous kilns. So many burners waste fuel by adding too much at a time, with the result that the fire is deadened, and before it has begun to burn brightly a large amount of fuel has been volatilized without giving off its proper amount of heat. If a burner is compelled to use a smaller shovel he tends to put less coal on the fire, and therefore to save much of the waste which otherwise occurs. Of course, there is a limit to the smallness of the shovel and to the saving to be effected, but in many firms this limit is by no means reached at present and the use of a smaller shovel can therefore be recommended.

A store for the coal in which it can be kept under cover will pay for itself in a short time, as wet coal burns badly and does not develop the same amount of heat as that which has been kept dry.

Suitable poling of kiln fires often saves both fuel and labor. The unskilled burner is very liable to mix the fuel and ash too much, with the result that an excessive amount of clinker is formed, resulting in poor combustion, prolonged heating and other indirect causes of waste of fuel. As far as possible the ash formed when coal is burned should drop quietly through the bars on to the bottom of the firebox without coming into contact with the red-hot coal for a moment more than is absolutely necessary. This can be managed by poking in such a manner that the ash in any part of the firebox is not stirred into the coal. For this purpose the poker should be pushed in and drawn out in straight lines, and it should not be used as a stirrer. If each particle of coal has a sufficient supply of air it will burn properly without pushing the bar into the coal and withdrawing it, leaving a space which is sufficient for the purpose. The number of times the bar is pushed in and withdrawn will regulate the number of such air spaces.

A poker may also be used to break down large masses of coke or caked coal, but this must be done with the necessary care and skill. The breaking should be done by a series of direct blows, and not by using the poker as a lever.

The difference between proper and unsuitable stoking is soon seen if a fire is treated as described above and afterwards is poked and stirred in the manner employed by careless burners. As soon as the stirring method is employed the formation of clinker will commence. After a time the clinker becomes so extensive that it has to be removed with great effort and the wastage of considerable amount of coal.

Some coals are so rich in fusible ash that they form much clinker, no matter how carefully they are treated. Such coals ought usually to be employed in some form of producer, where they can do comparatively little harm, and not in a fireplace of the kind originally used in kilns where they can do a maximum of damage.

Clinkers may be reduced in some cases by putting a flat pan containing water in the ashpit of each fireplace. The steam arising from the water keeps the bars rather cooler than would otherwise be the case, and it also helps to prevent the formation of clinker immediately above the bars. It will not stop the formation of clinker produced by stirring the ash and coal together.

A draught recorder is regarded as a luxury by many firms, but it is a real fuel saver if its indications are carefully studied. Such an instrument may be expensive, but it will save its cost in a few weeks. Indeed, cases have occurred in which the damaged goods from a single burning have caused a loss of much more than that of the instrument.

A draught recorder shows the variations in the draught of the kiln, no matter what may be the cause. It therefore indicates the extent to which the burner is following his instructions; it shows each time he mends a fire; it reveals every alteration in the damper, and on a windy day it shows the effect of the wind on the kiln—an astounding revelation to those who have never seen such a record.

Although a draught recorder cannot of itself save fuel, its indications show clearly what is wrong—the draught being excessive or insufficient—and by keeping the draught at its proper value (as determined from the records of good burns) a very notable saving in fuel may be effected and the proportion of damaged and inferior goods may also be reduced.

E. CONOMIST.

THE SCAPEGOAT.

The foreman of the factory, the man who is held responsible for the production in a great many plants, is the scapegoat. On his head he carries all the sins of commission and omission that the architect and erecting engineer made when the plant was built. To this has often been added an out of date method of getting the raw material. Many a night until eight, ten, twelve and two o'clock, and sometimes all night, the mill foreman has to work so he can be ready to take up again the terrible struggle of grinding wet clay mixed with shale which smears over the screen plates and screens, and clogs up the elevators, and after a day and night of worry and care, he is rewarded with a sharp, cutting inquiry next morning from the main office as to why he did not produce the full quantity of brick, and he is looked upon and made to feel he was at fault, when the truth was, if he had been supplied with dry shale the task would have been accomplished by 3 P. M., with all belts and machinery in good shape for the next day.

But never again will the terrible nightmare of grinding wet clay disturb his much-needed rest if he is provided with the latest highly developed method of gathering shale which makes it possible in even the most rainy weather to gather shale which will go through the dry pan and screens.

This system is fully described on page 533 of this issue.

One of the safe guesses to venture is that when the railroads are once again back in the hands of the owners the public will be more friendly toward their needs in the way of revenue.

EXPLOITING SEWER PIPE.

There are two things the Clay-Worker has persistently urged upon the clayworkers of the country. One is a closer walk with the retail dealers in lumber and building material, and the other is exploitation at fairs and other gatherings of people who should be interested in such products. This being so, it was naturally pleasing to encounter a firm exploiting sewer pipe at a meeting of hardware dealers. The occasion was the annual meeting of the Kentucky Hardware and Implement Dealers' Association at Louisville, and the sewer pipe exhibit, conspicuous among the many exhibits of hardware and specialty people, was that of the Cannelton (Ind.) Sewer Pipe Co.

In charge of this exhibit and mingling with the dealers present were General Manager H. M. Clemens, and their road man, John A. Schenk. They had a splendid layout of sewer pipe, chimney tops and kindred products which attracted its full share of interest.

Speaking of trade conditions, they report that January and February business was above the average for these months. This they attribute more to favorable weather conditions than to any special revival in building operations. Business as a whole for the year, they figure, will, of course, depend upon the trend of building operations, and at present they consider the outlook very bright.

The Day the German Fleet Surrendered—

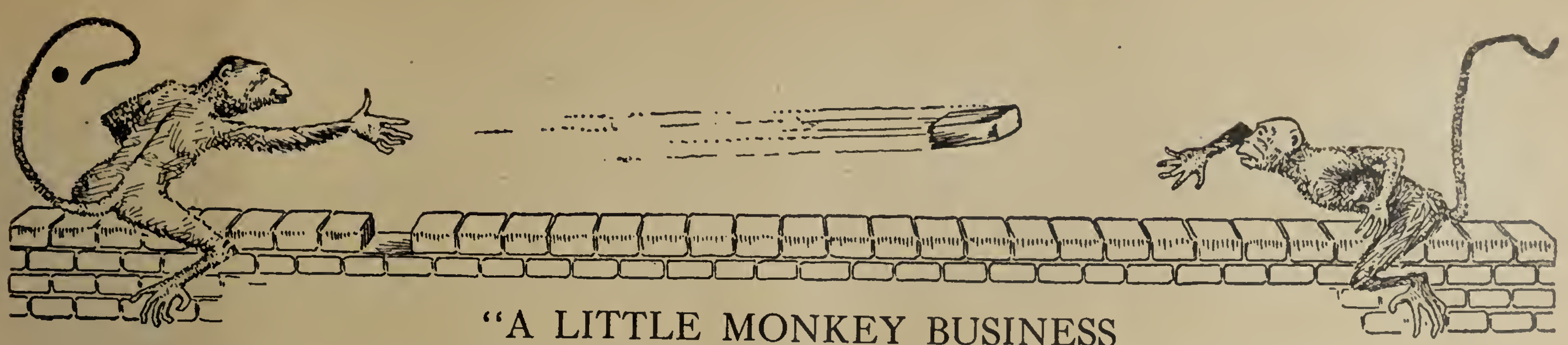
THE DAY those great gray ships of war came sneaking out from the Kiel Canal marked the end of Germany's naval power.

Thanks to the Allied Navy, thanks to our Boys of the Sea, thanks to the Ships and to the Liberty Bonds that put them there, *the seas are safe!*

Do your full share in the Victory Liberty Loan—in payment for the Victory that might have cost everything if we had not gone at it wholeheartedly and in the nick of time.

Victory Liberty Loan Committee

Out *of the* grey mist they came —— *the* German Navy—*to the* greatest humiliation *the* world has ever known—



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

GREATNESS."

"Remember, son, Garfield drove mules on a tow-path and Lincoln split rails."

"I know, dad; but say, did any of these Presidents ever crank a cold motor in a blizzard for half an hour before he discovered that he didn't have any gasoline?"—Richmond Time-Dispatch.

ACCEPTS HIS ADVICE.

Sufferer—"I have a terrible toothache and want something to cure it."

Friend—"Now, you don't need any medicine. I had toothache yesterday, and I went home and my loving wife kissed me and so consoled me that the pain soon passed away. Why don't you try the trick?"

Sufferer—"I think I will. Is your wife home now?"—Vancouver Daily Province.

DOG'S WONDERFUL BITE.

"What has become of the greyhound you had?"

"Killed himself."

"Really?"

"Yes, tried to catch a fly on the small of his back and miscalculated. Bit himself in two."—Tit-Bits.

ALL'S FAIR.

Movie Magnate—Why, even your grand opera stars are now playing in our silent dramas.

Grand Opera Magnate—But I am going to get even with you. I'm having a grand opera composed for Charlie Chaplin; it's called "Wriggeletto."

SPECIFICATIONS.

"But, Mabel, on what grounds does your father object to me?"

"On any grounds within a mile of our house."—Houston Post.

THE IDLE RICH.

The teacher asked his pupils to write an essay, telling what they would do if they had five million dollars.

Every pupil except little William Powers began writing immediately. William sat idle, twiddling his fingers and watching the flies on the ceiling.

Teacher collected the papers, and William handed in a blank sheet.

"How is this, William?" asked teacher. "Is this your essay? Every other pupil has written two sheets or more, while you have done nothing!"

"Well," replied William, "that's what I would do if I were a millionaire!"—Life.

OUT-BRAGGED.

Soldier from Over There: "Yes, sir; went over the top three times—and got hit twice."

Soldier from Over Here: "Huh! I curried one thousand mules, and never got a kick."—Life.

ENJOYMENT.

"Why do you attend the meetings of the club if you don't enjoy them?"

"I find so much there to criticise."—Detroit Free Press.

FAR OFF.

"Do you believe we will ever have universal peace?"

"No," replied old Gaunt N. Grimm. "Not until money and matrimony are abolished."

PERMISSION GRANTED.

"I am thinking of taking dancing lessons, uncle," said old Dorsey Dudgeon's favorite niece.

"Hop to it!" grunted the venerable curmudgeon.

A QUICK FINISH.

A teacher of a rural school in Montana had asked her small charges to tell improvised stories, the exercise being designed to teach the children to express themselves and to train them in the use of language.

She called upon John, the stodgy one, for a story. He couldn't get started. Then she asked Jane, John's bright neighbor, to start a story for him.

"Once upon a time there was a little boy named Ooglesby," began Jane.

"Now, John, you tell the story from there on," prompted the teacher.

"And Ooglesby died," said John.

Thereupon the class turned to weaving baskets, wherein John excels.

THOSE DOUBTFUL DON'TS.

My parents told me not to smoke;
I don't.
Nor listen to a naughty joke;
I don't.
They told me it was wrong to wink
At handsome men, or even think
About intoxicating drink;
I don't.

To dance or flirt was very wrong;
I don't.
Wild girls chase men and wine and song;
I don't
I kiss no men, not even one—
In fact, I don't know how it's done;
You wouldn't think I have much fun;
I don't.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.]. Indianapolis.

Vol. LXXI. APRIL, 1919. No. 5

CURRENT COMMENT.

Buy a bond and then boost the building game.

* * *

Boosting building activities is a good way to bust bolsheviki tendencies.

* * *

It still remains to be proven that the Germans are that class of sports called good losers.

* * *

If the coal miners get a six-hour day and a five-day week, what will the dear public get in the way of coal prices?

* * *

There is an old saying that every man is worthy of his hire, but it neither means nor proves that every man earns the pay he gets.

* * *

There has never been a time when those Build-with-Brick signs would do more effective service than right now. Are you hanging them out?

* * *

The greatest vocational training need of the day is for brick layers. There is a lot of future brick work to do, with not enough men trained to do it.

* * *

Road building will not only do a lot to furnish employment this year, but the good roads will be a great help to the country for many years to come—especially if they are built right and paved with brick.

* * *

The brick industry as a whole has never given as much attention as it should to the matter of salesmanship as a factor in the business. There has been an entirely too general a disposition to regard the selling part of the business as merely incidental. And that is one of the reasons why the business has not progressed more and stands in need of boosting right now.

* * *

The spring sales of automobiles indicate a plentiful supply of money and an active desire to spend it.

* * *

We have not really seen the war through till we take care of that issue of Victory Bonds and meet our increased taxes.

* * *

Let us strive earnestly to keep the "Sleeping Sickness" out of industry that business may thrive and the people prosper.

* * *

The gardening habit, like the thrift habit, is among the good things coming out of the war that we should hold to and keep working.

* * *

If the lumber folks maintain the high price schedule they have been standing out for it should prove a great boost for brick even in modest home building.

* * *

Antagonism between different branches of the clayworking industry is bad business that should be kept down. There is room for all and all should pull together for the common good.

* * *

The home building movement is a great idea to help boost along, but let us not forget while we are about it that other forms of building are essential, too, and should be kept moving forward.

* * *

The auto, the motor truck and the tractor are doing more to keep the youngsters on the farm right now than any other agency, and they are also doing a lot in the transformation of farm life generally.

* * *

One good way for a man to learn something is to start out to teach it to some one else. This means that by teaching real Americanism to the foreigners among us we may also learn to be better Americans ourselves.

* * *

As the year progresses the predictions of a great era in advertising are proving true. The best way to find new customers and to exploit a product is through the medium of advertising in publications going to the people you want to reach.

* * *

There is no question but what private interests in different sections of the country should help keep alive and active the different branches of the government employment bureau. This organization is rendering splendid service all around and the negligence of congress in providing finances for it should not be permitted to close the service. Help the bureau and then tell it to the next session of congress.

THE CURE FOR HESITANCY.

About the only thing which ails the building and industrial world generally now is a case of hesitancy, and the main problem of the day is to find and apply a cure for hesitancy. Time will effect a cure, but we are properly impatient of time and want to speed things up a bit, and it is this that brings a call for some specific.

Our friends of the Lakewood Engineering Co., Cleveland, Ohio, offer as a remedy the establishing of basic prices for a specified period on what you have to sell, say for six months or for the season. They are following that policy and advising others to do likewise, and the policy looks good, too.

There is no question but what the hesitancy all around is mainly due to waiting for prices to settle down to wherever they are going from the war peak. So there should be no question but what the stabilizing of prices at some definite point would furnish about the best cure for hesitancy—the establishing of prices that are fair, and creating confidence in them. The more of that we can do in the shortest time the sooner building operations and other industrial activities will get under good headway.

A GOOD EXAMPLE.

Newspaper reports from Paris, Ky., say that the Paris City Council has adopted resolutions for the paving of practically every principal street in the city with vitrified brick. In this Paris is setting a good example that other cities and towns might well follow. It not only helps solve the problem of employment, but it means an investment that will pay good returns in the years to come.

THE CLAYWORKER AND THE COAL MAN.

If the clayworking industry as a whole is kept properly active this year it should consume something like ten million tons of coal. This means that with a proper revival in building activities—which it looks like we are to have—we will find the clayworking industry the largest consumer of coal, after the railroads and the metal industries. To help his own cause along the coal man may well lend an active hand in promoting building and industrial activity, and also make such concessions to the clayworking industry as are properly due the larger users of his product. In a word, it is time for the coal man to more seriously consider the clayworking industry than he seems to have done in the past.

HANG OUT THE SIGNS.

That those Build-with-Brick signs so widely used by the industry for several years have served splendidly in promoting a greater interest in and a wider use of brick, there is no question or room for argument. The need in this connection today is to reawaken enthusiasm about them, for there is just as much room to profit from their use today as when the idea was first exploited by The Clay-Worker, and so enthusiastically taken up by the trade at large. True, the keen edge of their newness has worn off, but their usefulness has not passed, not by any means. They are just as useful and effective today as when they were first spread out before the public view. Moreover, in the country-wide movement to boost the building game there is furnished a special opportunity for more than the usual attention and results from a wide use of these same signs. The strongest call of opportunity on the present occasion is for the clayworking industry to hang out the signs of its products. It is an occasion for getting busy again as in those first enthusiastic days, to make the Build-with-Brick signs conspicuous the country over.

LOOK TO YOUR BURNERS.

Roundly speaking, fuel prices are now about twice what they used to be. Here and there one may find some easing off, but it is nothing like what was hoped for and the indications point strongly just now to high prices in the future, to coal prices on a much higher plane than was ever dreamed of before the war period. This makes it important for the clayworker to look closely after his furnaces and his fuel-burning efficiency generally, both in the kilns and in the power house. Fuel, labor and mechanical equipment are the main factors in the cost item of clayworking, and as a rule the more mechanical equipment brought into play to reduce labor cost the more fuel for power purposes is called for. The fuel item is easily important enough all around to call for special attention. Fortunately it is a subject that has long been under consideration and discussion, and out of experiments and research work many new ideas have been brought into action to help out. We should keep on working and seeking for greater efficiency, and meantime it is up to every man in the business to look carefully after his furnaces that he may know whether or not he is getting the results he should from the fuel used.

STREET PAVING REVIVAL.

Unless what we see and hear about it is mostly smoke instead of fire, we seem to be in for quite a revival in street paving throughout the country, and this should be encouraging for the paving brick division of the industry. Cities are being stimulated to do a full measure of improvement work so as to help solve the problem of unemployment, and from the general spread of the effort it looks like street building may keep pretty good pace with the great road-building program of the country. With street paving being talked about and planned for in nearly every city and town in the United States, it is up to the paving brick people to get busy on the job that a fair share of them may be paved with brick and the paving brick industry set to humming with busy times.

THE MATTER OF SIZES.

The value and usefulness of standards is quite largely determined by the matter of adherence to them. A standard, whether it be of size, shape or quality, is of but little value if it is not broadly used and followed consistently. This applies with as much force in brickmaking as anywhere else. Sizes have been standardized in common brick, in face brick, and in paving brick. Any maker of either of these products who is not familiar with the standard size should immediately inform himself on this point, and make his product conform to the standard. In the end this will prove better for the individual as well as for the business as a whole. And right now, while we are in the midst of a readjustment of values, is a time when it is even more important than usual to follow and uphold standards. Standards are the basis of stabilized prices, and now that we have standards set up in the brick trade, let us follow them.

BUILDING MATERIAL AND FREIGHT.

Yes, the brick and tile trade was hit pretty hard in freight rate advances, as some of our friends in the trade have taken note of and made proper protest about to the folks who guide the destiny of freight rates. But brick and tile were not the only things hit; lumber, steel and other items entering into building operations were likewise landed on. The upshot of it is that the freight charges and labor prices are the main factors of increase in the cost of building operations.

Meantime along come the road enthusiasts and ask for some freight relief to encourage road building, and the crushed stone people, interested in this, are also interested in developing trade in agricultural limestone, so there is a plea under consideration for concessions on this, too.

There is splendid logic in the idea that general building operations need fully as much encouragement through favorable freight rates on material as road building, and brick being a heavy product the freight item on it is especially conspicuous, making a handicap that we need relief from.

The trouble is that freight concessions on one item would be an opening wedge for similar claims for forty or more different items. So, in the end, the only defendable basis for freight rates is that of cost, tonnage, and profit yield. Favors and concessions pave the way to wringles and confusion.

PLYMOUTH GASOLINE LOCOMOTIVES.

ALWAYS UP TO DATE and giving the trade the best Co., Plymouth, Ohio, and the same rule prevails in re- they can make seems to be the slogan of The J. D. Fate gard to their catalogue and literature. Especially is this true of their catalogue No. 4, devoted to their Plymouth Gasoline Locomotives, a very interesting loose-leaf hand booklet, containing eleven bulletins dealing with the subjects, general manufacturing and gravel, general contracting, brick and clay, stone and cement, coal and coke, general mining, cities and public work, logging and lumbering, plantation and large estates.

Of particular interest to the clay trade is that part styled Bulletin E., which shows the Fate locomotives in operation in such plants as George H. Clippert and Brother and John S. Haggerty, Detroit; the Ohio Clay Co., Cleveland; the Burton Townsend Co., Zanesville, Ohio; the Alliance Clay Products Co. and Alliance Brick Co., Alliance, Ohio; Claycraft Brick Co., Columbus, Ohio; State Hospital for Inebriates, Knoxville, Iowa, and many other well-known plants in all sections of the country, including the Lincoln Clay Products Co., Lincoln, Cal., and the Oschwald Brick Co., Cliffwood, N. J.

As stated in the catalogue, "It has been the aim of the J. D. Fate Company to make Plymouth Gasoline Locomotives as broad and versatile as the industries they serve. Equipment of this sort qualifies as '100 per cent' useful' when it does all the work that its owners require to be done; and neither the Fate Company nor their customers are interested in anything short of that. Plymouth Gasoline Locomotives are now serving more than a dozen separate lines of industry. This bulletin covers only one of them." The catalogue will be mailed to any one requesting same.

GOVERNMENT CO-OPERATION.

One great handicap to proper co-operation between the government and the business interests of the country is in the disposition of government authorities to want to direct instead of merely assisting in things of this kind. The war and the various boards with arbitrary power and rulings furnished an example that sticks in the craw of the average business man and makes him hesitate when any proposition comes up with a view to having the government and business work hand-in-hand together. When government authorities can demonstrate that they have learned how to extend a helping instead of an arbitrary guiding hand, then the first step will be made toward hearty co-operation between the government and business interests.

THE NEW SOUTH WALES STATE BRICK PLANT.

What is known as the State Brick Works is owned and operated by the Government of New South Wales, and it is quite a brick plant, according to a report from Consul General J. I. Brittain, of Sidney, Australia. The plant is located at Homebush, about ten miles from Sidney, and part of the equipment at least is of American manufacture, that used in reclaiming the shale for the brick. The plant employs 130 workmen and the output last year was 29,720,259, which was somewhat below the normal production. The cost of manufacture is given as $7.75 per thousand. The net profit for the year, after deducting interest on capital and profit for the sinking fund is given as $17,869, to which is added a saving to the government on the price of brick for government building, a total of $49,759.

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WANTED.

Brick and hollow tile setters; will pay $5.00 per day. Also good tossers; will pay $4.50 per day. Apply
TABLE ROCK BRICK & MATERIAL CO., Table Rock, Neb.
4 2 d

CURRENT NOTES.

One of the serious needs of the day is some way to make the skilled trade of bricklaying so attractive that a big army of young men will enlist for this work.

* * *

Real success in business involves a fair measure of satisfaction with your work as well as a fair measure of profits in the return.

* * *

Even in the states that remain wet for the time being the increased cost of the cup that cheers—and also inebriates—will come so high that it will put many a man on the water wagon.

* * *

No matter what you may think about the League of Nations, let us keep busy at the job of making this country of ours the leading nation of the world.

* * *

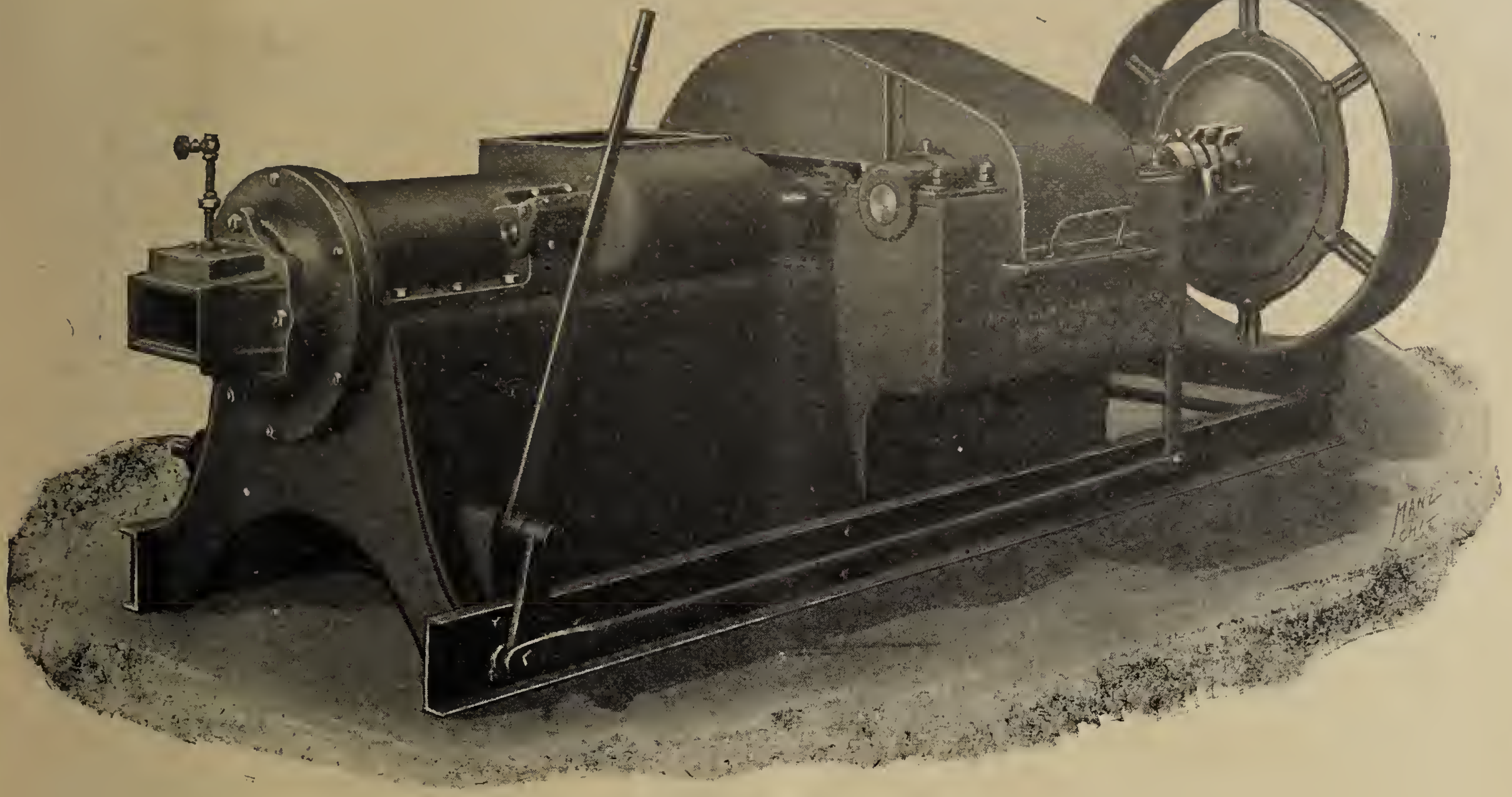
Those soldier boys who have returned now one and all think a whole lot more of their home country and surroundings than they did before they started forth on the great crusade.

* * *

Greed is a sort of inherent part of the human make-up and it gets into the hearts of labor leaders as well as business barons, and if not held in check it can and does cause trouble all around.

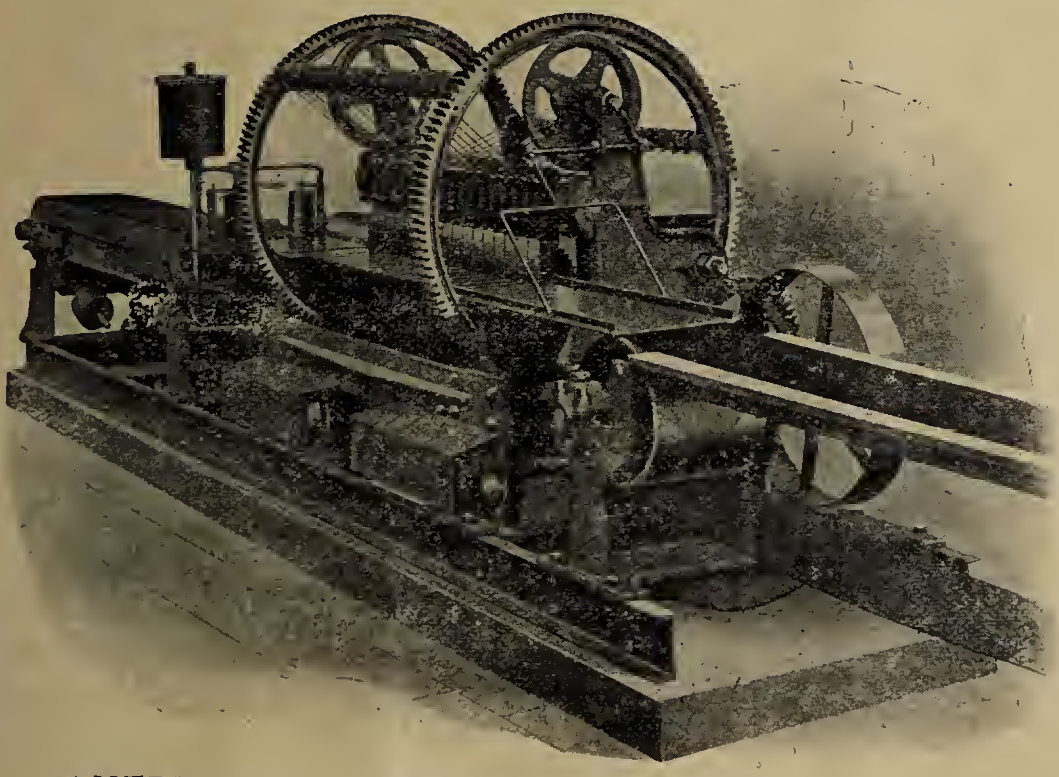
* * *

There seems no question but what the price of coal will remain high enough to make fuel economy an item of importance in brick burning, and a study of the subject a live issue with those in charge of the work.



AMERICAN No. 233 AUGER MACHINE

There is no auger machine built which will compare with the American No. 233 for a general purpose machine. In build, design and material it is unapproached for quality, speed and low power consumption. Its upkeep cost is insignificant and its capacity almost abnormal. Complete description and specification sheet to those interested Our line of clay machinery is complete and high class throughout.

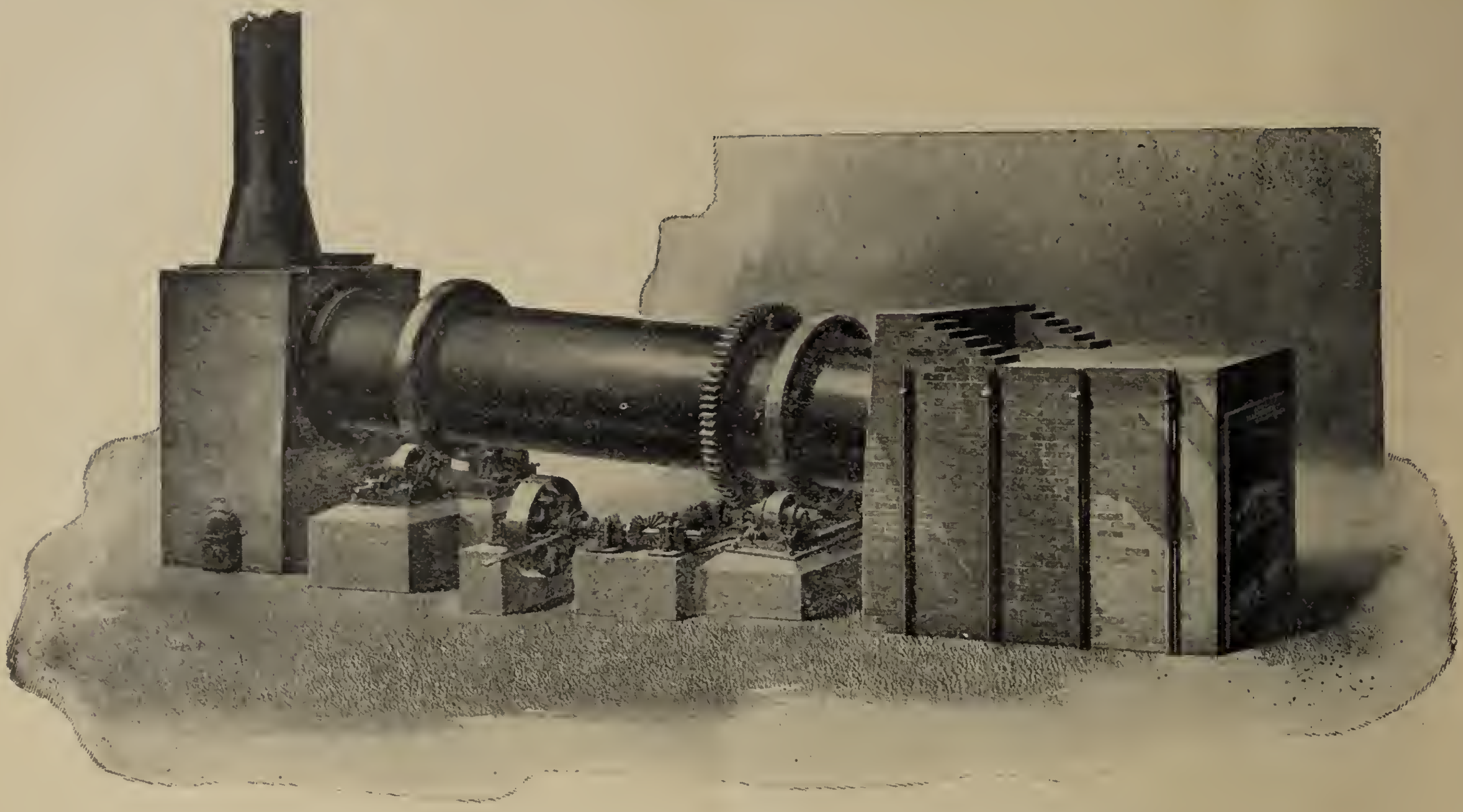


AMERICAN No. 342 ROTARY AUTOMATIC CUTTER

American No. 342 Cutting Table.

This American No. 342 is a popular favorite. It is unusually simple. Is well built and has a splendid capacity. Get description.

THE AMERICAN CLAY MACHINERY CO.
Bucyrus, Ohio.



AMERICAN ROTARY DIRECT HEAT DRYER

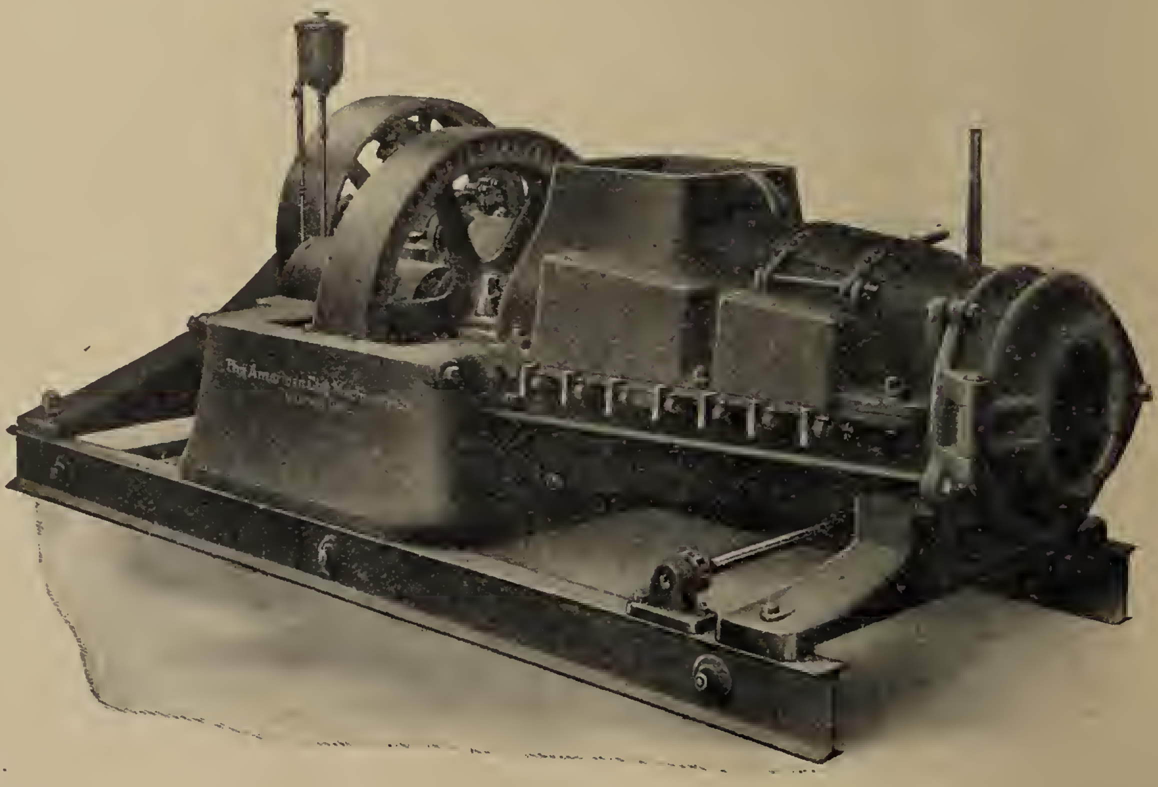
In the clay and shale trade the direct heat dryer is becoming a recognized part of the equipment to prepare the materials for dry pans. It affords a positive means of maintaining the regular daily output of the pans without regard to weather conditions, and is readily one of the most valuable units in the entire equipment of such a factory.

Send for Specifications and Full Description.

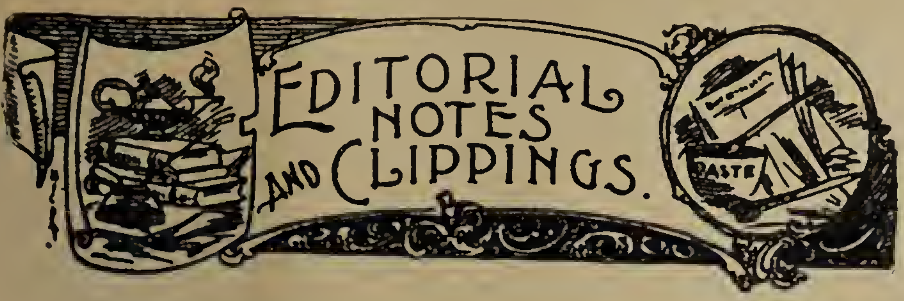
American No. 168 Taper Tub Pug Mill

A splendidly built machine for thorough mixing and tempering. Get specifications. We build a complete line of Pug Mills.

The American Clay Machinery Co.
Bucyrus, Ohio.



AMERICAN No. 168 TAPER TUB PUG MILL



EDITORIAL NOTES AND CLIPPINGS.

C. Miller & Sons are very busy rebuilding their brick plant at Clermont, Iowa.

The Better Brick Company of Scottdale, Pa., now has its new plant in operation, running full time.

R. B. Lilburn and C. P. Hess have filed incorporation papers for the Hess Goodwin Co., Belle Plain, N. J. The company is capitalized at $50,000.

The Elk Mountain Mfg. Co., has been organized at Asheville, N. C., by Owens Norvel, J. E. Swain and Ruffner Campbell. The concern is capitalized at $10,000.

The United States Clay Products Company has been organized at Sandusky, Ohio, where a plant will be located for the manufacture of porcelain insulators and similar products.

The Savage Fire Clay Co., of East Liverpool, Ohio, has recently been incorporated by I. M. Smith, Marcella Fowler, E. H. Lockhart and others. The company is capitalized at $30,000.

The plant of the Coral Ridge Clay Products Co., of Louisville, Ky., is again running full time. James T. Howington, the energetic general manager, is looking forward to a good season.

The Sioux Falls, (S. Dak.) brick works has started up with enough orders on hand to insure a steady run all season. The prospects are better in the building line than they have been for some time.

J. T. A. Ritchie of Vancouver, B. C., who was one of Canadian's great army that helped defeat the Hun, has recently purchased the plant of the Gabriola Shale Products Co., Gabriola, Island, B. C.

Ben H. Edwards, Jr., secretary-treasurer of the Richards Brick Co., Edwardsville, Ill., advises us that his company has taken on the distribution of a line of drain tile in that territory, and expects to push it vigorously.

The Federal court has ordered the big plant of the Municipal Shale Brick & Block Co., at Martinsburg, W. Va., sold. The plant is valued at between $75,000 and $100,000. The company owning same went into bankruptcy some time since.

The Purington Paving Brick Co., Galesburg, Ill., took advantage of the lull in operations during the war period to make a number of improvements in their plant. Among other installations is that of a new clay crushing plant which includes two large dry pans.

The National Shale Brick Co., Martinsburg, W. Va., recently incorporated, with a capital of $250,000, is arranging for a new plant near Martinsburg, to cost in excess of $200,000. C. V. Aler is president of the company and will be glad to receive catalogues of machinery and supplies.

At the plant of the Ferro Brick Company, at Watsontown, Pa., an unusual double accident occurred. First Harvey Kemble got caught in a brick cutting machine and his hand was badly mangled. No sooner had he been taken to the doctor's office when Harry Rank undertook to operate the machine and was similarly caught, suffering a broken arm.

The plant of the Decatur Brick Mfg. Co., at Decatur, Ill., is in operation at normal capacity for the first time since 1917. During all of 1918 the output was curtailed very materially, but the outlook is now so favorable that the manager, E. D. Mattes, feels there will once more be a demand for all they make. The company has just issued a beautifully illustrated catalogue.

Elgin Standard Brick Manufacturing Company of Elgin, Texas, has been incorporated with capital stock $75,000. Incorporators: W. C. Rivers, G. W. Prewitt and W. H. Rivers, Jr.

The Alto Brick Co., of Rome, Ga., a company with a modern plant in operation, has recently been incorporated with $30,000 capital stock. B. E. Welsh is at the head of the concern.

The Grand Rapids Brick Company's plant of Grand Rapids, Mich., which was idle during most of the war period, has been taken over by C. G. Easley of Detroit, and the firm's name changed to Standard Brick Company.

The Climax Clay Co., of Bessemer City, N. C., has been incorporated and will erect a plant for the purpose of washing clay for pottery and paper manufacture. J. A. Smith is president of the concern which is capitalized at $50,000

The Sharon Clay Products Company of Sharon, Pa., has increased its capital stock to $125,000. Arthur W. Krause, president of the company, announces that they will spend $25,000 installing new time and labor saving machinery, etc.

The Ricketson Mineral Paint Works, Milwaukee, Wis., secured an order for 60,000 lbs. of chocolate mortar color on one job—Skinner Packing Co. building, Omaha, costing two and one-half million, and covering eleven acres. Selected their color over all others.

According to the Zanesville press, J. B. Owens, the well known tile and pottery man of Zanesville, Ohio, will soon have a large tile factory in operation in Havana, Cuba, to supply the ever increasing demand for building tile in the Latin-American countries and the South American republics.

Notice has been issued that Robert Goodwin Sr., and the estate of Thomas Goodwin, deceased, have retired from the co-partnership known as the Goodwin Tile & Brick Company of Des Moines, Iowa, and the business of the firm will be continued with W. J. Goodwin and Daniel Goodwin as the sole and only partners.

E. J. Schario, H. S. Armstrong, J. H. Reinsberger and others of Canton, Ohio, have taken over the plant of the Keim Brick & Tile Company, located at Mapleton, Ohio, and A. L. Keim, former owner, has retired. The new company, which will be operated under the name of the Mapleton Clay Products Co., is capitalized at $100,000. A coal mine will also be operated in connection with the brick plant.

Led by the Harbison-Walker Refractories Company, of Pittsburgh, the fire brick manufacturers of that vicinity have announced a cut in fire brick prices of 10 per cent. Common sizes of refractories brick which until recently were selling at $40 and $50 a thousand will hereafter be $36 and $45, respectively, and while the cuts on some 30 varieties of brick vary somewhat they will average about 10 per cent.

The old Wilkesbarre & Hazleton Brick Co., of Hazleton, Pa., has been reorganized and the name changed to The Hazleton Brick Co. The company is now controlled entirely by Hazleton men and the plant will be started up at once. This was a prosperous concern until war conditions made it impossible for the plant to be operated, but now that local capital is interested, the prospects are bright for the future of the company.

At the annual meeting of the stockholders of the National Fireproofing Company of Pittsburgh, Pa., held early in April, three directors were elected to serve three year terms. Those elected were E. H. Straub, W. M. Scaife and E. W. Gwinner. The last two named succeed W. D. Henry, president of the company, and J. B. Finley, chairman of the board, both of whom died recently. A date has not yet been announced for election of officers by the directors. H. M. Keasby, first vice-president of the company, presided over the stockholders meeting.

The Lexington Brick & Tile Mfg. Co., of Lexington, Tenn., has been incorporated with $12,000. T. A. Enochs, J. W. Threadgill, L. T. Filder and others.

Conocheague Brick Company, of Williamsport, Pa., owned and operated by Victor Cushwa & Sons, has resumed operations after having been closed during the war with full force of men. The plant has a capacity of 82,000 bricks a day.

Johnson-Porter Co., at McKenzie, Tenn., miners of clay, with pits in Carroll and Henry counties, are active with a large force of men. Special trackage to their mines runs from the main line of the N. C. and St. L. R. R. The plant is a few miles from McKenzie, Tenn., in the vicinity of Hico, Tenn.

A movement is on foot in the Chamber of Commerce of Eldorado, Kansas, to have a brick plant established in that town. There is plenty of good shale in the county and now that permanent highways are being considered, there would be no question about a good market for paving brick.

Davis Brown, for many years connected with the American Clay Machinery Company, Bucyrus, Ohio, but recently associated with the J. D. Fate Company, of Plymouth, Ohio, has gone back to his first love, and is once more numbered among the live wires of the American Clay Machinery Company force.

John C. McNamara, for thirty-five years a brick manufacturer of New York City, died recently at his home in Beacon, N. Y., of pneumonia. For the last three years he was connected with the brick selling firm of Barnes and McNamara.

The valley districts of California, in which the prosperous farming communities are located, are showing signs of renewed building activities. The January permits of Visalia, Cal., indicate a hundred per cent. increase over the December, 1918, permits. Two brick building blocks will be commenced shortly, and a number of new residences were on the February schedule.

The Progress Press Brick Co., is the name of a company which has been organized by members of the Hillenbrand family to take over the interests of the old Hillenbrand Brick Company, of Louisville, Ky. Andrew P. Hillenbrand, formerly the head of the old concern, while interested in the new organized concern, has turned the active management of the business over to his three sons, Oscar, Carl and Andrew.

Work has commenced on the new plant of the Columbia Coal & Brick Co., Buckeystown, Md., which was destroyed by fire last fall. The plant which is to be equipped with modern machinery and appliances will be operated throughout by electricity. Hollow tile and brick will be made and it is hoped to have the plant in operation early in June. J. H. Baker is president and treasurer of the company, while John J. Daniels is plant superintendent.

The American Encaustic Tiling Company of Zanesville, Ohio, has purchased the plant of the West Coast Tile Company at Vernon, Cal. The American Encaustic Tiling Company is a New York corporation, with its principal office in New York city. It has plants in New Jersey and Ohio and now, with the West Coast company's plant in the group, the chain is complete, so that production can be handled to advantage. Emil Kohler of New York is president and H. D. Lillibridge, of Zanesville, is vice president.

The better the equipment of labor saving machinery and devices you have the better wages you can afford to pay and still keep the cost of production within reason.

UNCLE SAM TO BOOST "OWN YOUR HOME" CAMPAIGN.

The National Federation of Construction of Industries in its second news letter announces the creation of a National "Own Your Own Home" Bureau as a division of the U. S. Department of Labor. The bureau is composed of represenatives ment of Labor. The bureau is composed of representatives of the National Federation of Construction Industries, the National Association of Real Estate Boards and the U. S. League of Local Building and Loan Associations. The National "Own Your Own Home" Bureau will operate as a government agency. A complete plan of campaign is now ready for distribution to those who are interested. Requests should be sent to National "Own Your Own Home" Bureau, % Dept. of Public Works & Construction Development, Department of Labor, 1607 H. St., N. W., Washington, D. C.

Persons who are interested in the work of the National Federation of Construction Industries should communicate with its general offices at 757 Drexel Building, Philadelphia, Pa.

BRITISH POTTERY FEATURES.

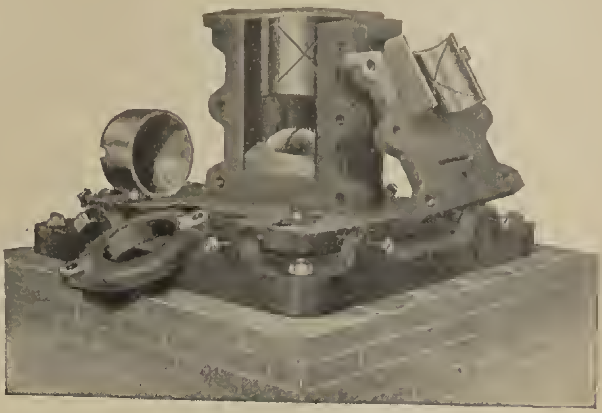
The leading features of present exhibits of pottery in England are, dinner and tea ware in which reminiscent styles predominate, and the introduction this year of the new hard porcelain which has been evolved as a result of research work conducted by Dr. J. W. Mellor and Mr. Bernard Moore. The new product has been developed to compete with the German and other continental hard or felspathic porcelains. It is said that in appearance and texture the new British offering approximates more nearly the old Chinese than the German porcelain, and is particularly adapted to the use of under-glaze colors, some of the blue printed ware being particularly charming. The new hard porcelain, it is said, though not rivaling in texture and delicacy the Staffordshire bone china, is more highly vitrified, wears better, and remains clean even if chipped. This new product has not yet been developed extensively in a commercial way, but it is reported that some fifty manufacturers have obtained the recipes and are experimenting with a view to featuring it.

THE WELFARE HOBBY.

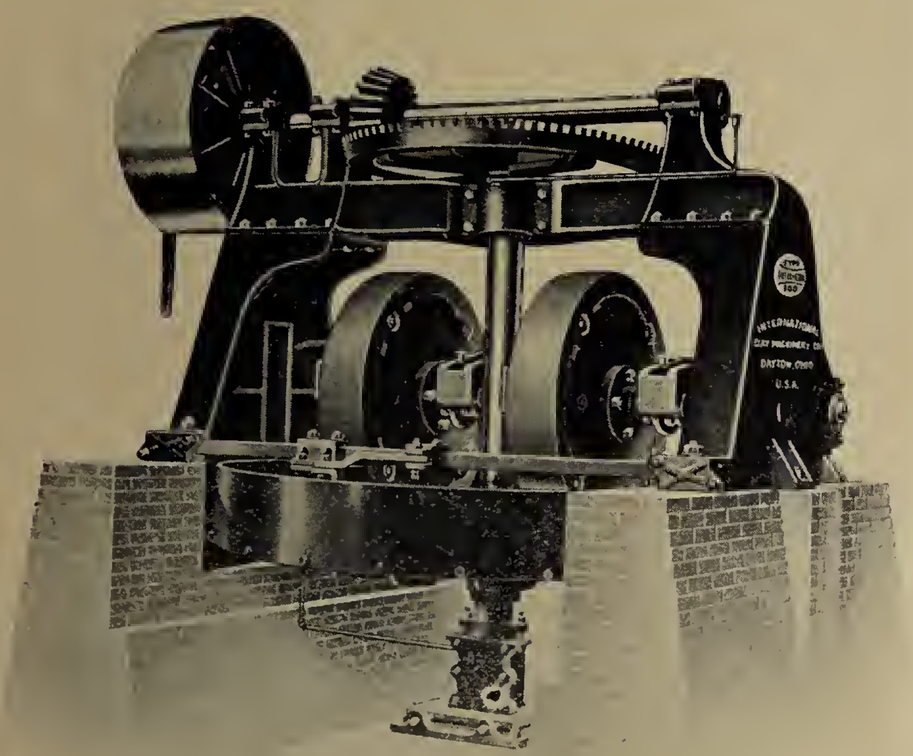
One of the war inheritances that we now find ourselves heir to is the welfare hobby. It was created out of the conditions and the call of war, and now this hobby is headed full bent for industry, with the proclaimed object in view of doing good for the man who works. It was Irvin Cobb who sent up a headline prayer in this connection for a fool-proof war, and there now arises evidence that industry and those who work may soon be sending up a cry for deliverance from foolish folks and their good intentions. To be interested in the welfare of our fellowmen is one and a proper thing, and to ride the welfare hobby to the point of impractical ideals and annoying interference is another and different kind of thing, and it is this very thing we are now in some danger of doing unless we call a halt and do some thinking about where we are headed off to. There is a lot of difference between a wholesome interest in the upbuilding of the country and the welfare of the people and the hobby riding along this line that leads to mushy sentimentality, and now is a good time to take notice of this difference and watch our step in this welfare work.

After all, the really big market for nearly everything grown and made in this great country of ours is right here in the domestic trade.

A PAN FOR HEAVY DUTY WORK



THE RADIAL BRONZE STEP



TYPE 100 DRY PAN
TYPE 160 WET PAN

Low Massive Frames Bolted at Three Points Mean STRENGTH.

Close Set Mullers Permit of Large Screening Surface Giving CAPACITY.

A New Clutch—Large Shafts.

Triple Bearing Cross Rail.

A Step Bearing That is Known Throughout The Country.

Isnt This The Pan You Have Been Looking For?

Get Bulletins 36 and 49

International Clay Machinery Co.

DAYTON, OHIO

NATIONAL ASSOCIATION OF MANUFACTURERS CONVENTION, MAY 19, 20, 21, 1919.

Annual Gathering to Take Up Bolshevism and Other Industrial Matters.

BOLSHEVISM and all forms of social or industrial unrest will be one of the important subjects to be discussed at the Twenty-fourth Annual Convention of the National Association of Manufacturers, to be held at the Waldorf-Astoria Hotel, New York City, on May 19, 20 and 21, 1919. Other topics to be considered are Government ownership of railroads; Government supervision and stabilizing of trade prices; Federal revenue and tax legislation; employment relations; employer's duty to provide jobs for soldiers; approaching revision of our patent laws; the industrial legislative outlook, and vocational training.

A special Round Table Export Trade Session will be held in the evening of one of the Convention days.

Recommendations by the Association's Committee on Readjustment After the War, based on an exhaustive survey of the present situation, will be presented in a special report. Other committee reports will also be received on such subjects as: Bankruptcy, Health and Safety; Industrial Betterment; Interstate Commerce and Federal Incorporation; Permissive Price Maintenance and Union Label.

Walter D. Hines, Director-General of the United States Railroad Administration; Daniel Willard, President of the Baltimore and Ohio Railroad; Professor William Starr Myers, Princeton University; Frank A. Halsey, Commissioner, American Institute of Weights and Measures and Edward J. Prindle, member of the Committee on Patent Law Revision of the Council of National Defense, Washington, D. C., are some of the Convention session speakers already arranged for.

The annual banquet of the Association will be held on the evening of (the last day of the Convention) Wednesday, May 21, 1919. Miles T. Poindexter, United States Senator from the State of Washington, will be one of the banquet speakers.

Incident to the Convention there will be presented a diagrammatic and physical exhibit devoted to various phases of readjustment problems involved in the transition from war to peace conditions from the manufacturer's and exporter's point of view.

THE BOOK OF SMILES.

Always interesting because of the intermingling of facts and fancies, the Book of Smiles for April contains several timely hits. Naturally it has something to say about going dry July 1st. The Standard Dry Kiln Company have been a great assistance to the brickmakers of the country helping solve the drying problems for a good many years past, so that "going dry" is an old story oft retold in the Book of Smiles. The piece de resistance in current Smiles is a reproduction of Edgar A. Guest's Washroom Tragedy, which we give in full. Everyone who travels these days will read it with pleasure, and but few of them but would enjoy seeing the washroom hog meet the fate he so richly deserves. If, after reading the tragedy you feel a need of something a little lighter, or a little heavier, according to your viewpoint, write for The Book of Smiles. It will give you both. Address the Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.

THE WASHROOM TRAGEDY.

By Edgar A. Guest.

They found him in the washroom of a Pullman sleeping car.
Some thought that he had fallen and been staggered by the jar;
Some fancied he had fainted, and some guessed he'd had a stroke.
But the wise ones only chuckled, when at last the victim spoke:
"I was shaving! I was shaving! Oh, I can't remember more.
I was shaving, busy shaving, when I seemed to hit the floor!"

It was early in the morning and the train was pulling in
When the gentleman decided that he'd scrape his cheeks and chin;
So, regardless of his neighbor who might want to wash his face,
He proceeded very calmly to make use of all the space.
I can't tell just what happened, for the room was very small,
And a lot of us were waiting, when we heard the stranger fall.

On the leather cushion near him stood his open traveling case
And his personal possessions occupied each bit of space.
From the hooks his clothing dangled—he'd monopolized them all;
There were shaving soap and powder and some stuff we couldn't call—
Quite enough to stock a drug store, on the washstand strewn about,
Which is why the wise ones chuckled when they found him flattened out.

No one seems to know the story, no one seems to care to tell;
We found him cold and silent in the washroom where he fell.
There are some who think he fainted, some who think he had a stroke,
But the wise ones sit and chuckle, and they treat it as a joke.
For they know that some one landed, with a wallop swift and straight,
On the hog within the washroom, who too oft had tempted fate.

UNIFORM KILN TEMPERATURES

are assured if your kilns are insulated with SIL-O-CEL brick according to the specifications of our engineers.

A suitable thickness of SIL-O-CEL insulation retains 75% of the heat that is ordinarily wasted through radiation.

SIL-O-CEL PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

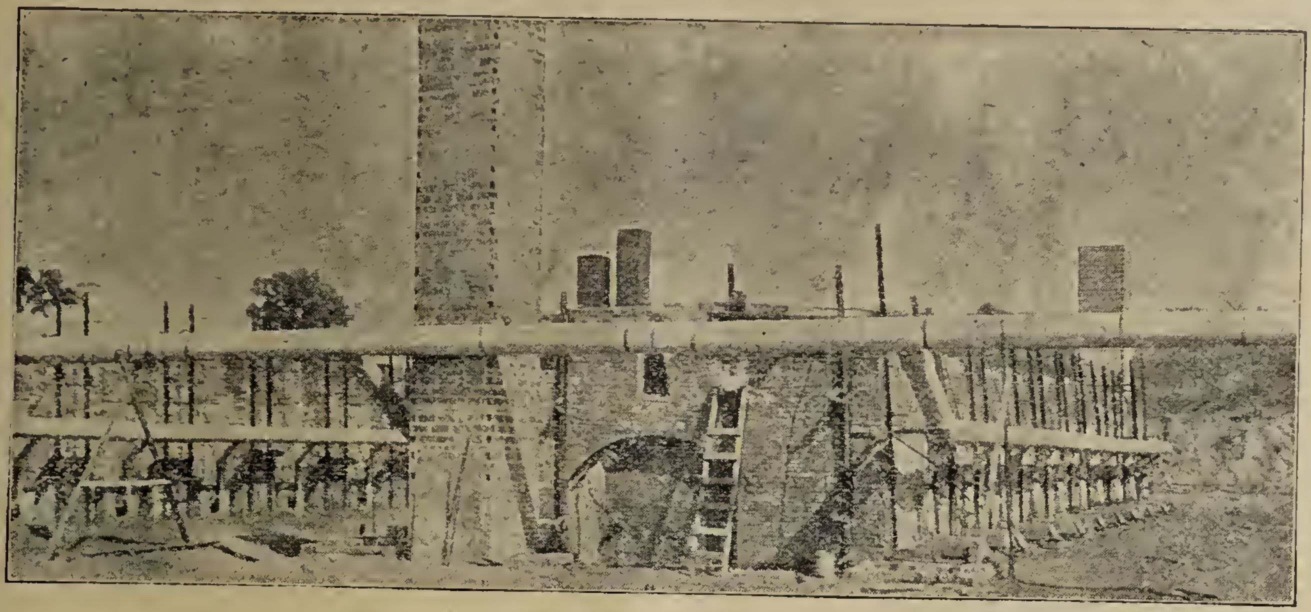
will increase the output of your kilns and your ware will be more uniformly burned with a great reduction in spoilage SIL-O-CEL keeps the heat in the kilns, prevents its dissipation and keeps all portions of the kiln at a uniform temperature.
Our engineering department will advise on the proper application of SIL-O-CEL to your kilns—either old or new.
Bulletin W-71 has the facts that will interest you, write for it to our nearest office.

CELITE PRODUCTS CO.,

NEW YORK, 11 Broadway.
PITTSBURGH, Oliver Building.
CHICAGO, Monadnock Bldg.
LOS ANGELES. Van Nuys Bldg.
SAN FRANCISCO, Monadnock Bldg.

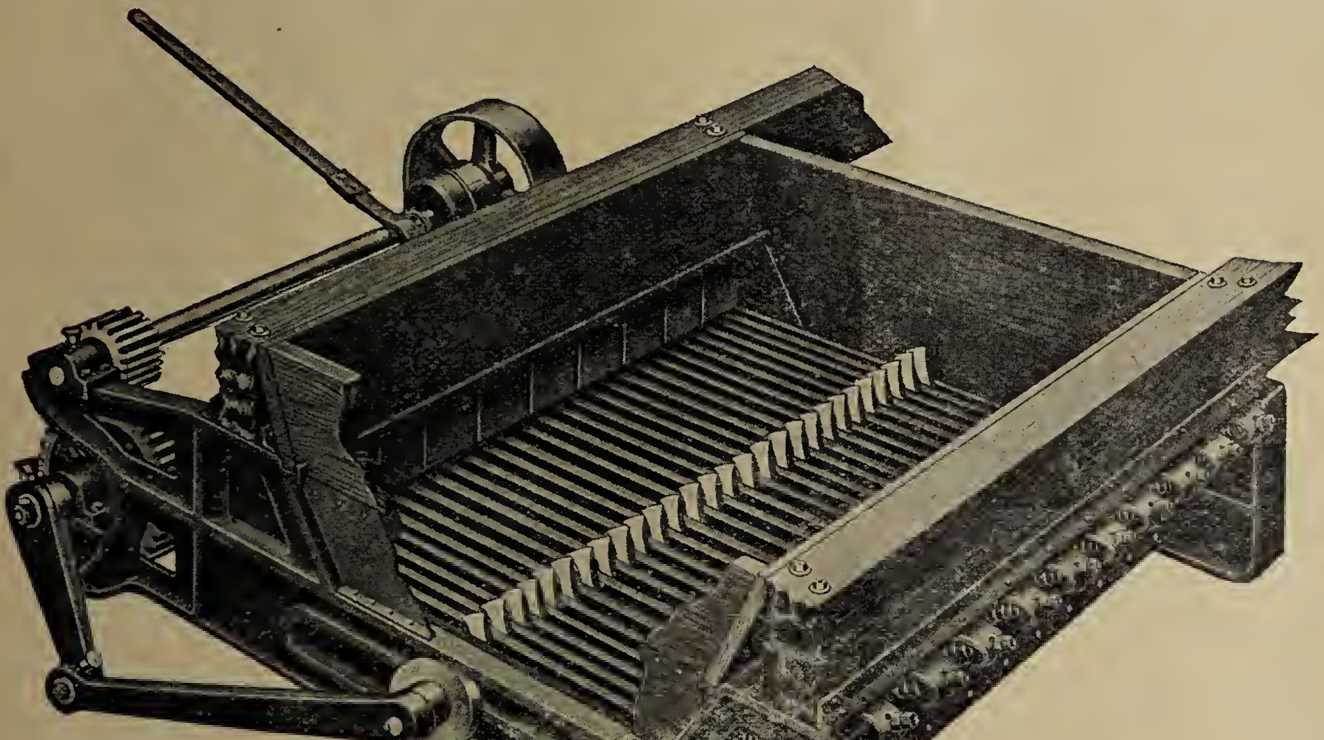
When The U S Gov't Through Their Bureau of Standards

Think Sufficient of The Underwood Gas System To Investigate Then Endorse It



Are You Justified Doing Likewise?

The Berry Stone Separator, Pulverizer and Feeder



It is a special machine for separating stones from surface, or deposit clays. It also serves as a feeder and pulverizer. It is the only machine ever offered for the purpose. It will clean your clay of stones and relieve your roll crushers of impossible duties. It is now in successful operation.

Write for full particulars.

Direct Selling Agents,
J. C. STEELE & SONS,
Complete Line of Clay-Working Machinery.

The Manufacturers Equipment Co.

Dayton, Ohio. U. S. A.

Mention The Clay-Worker.

Written for The Clay-Worker.

EVANSVILLE AND SOUTHERN INDIANA BRICK AND BUILDING MEN.

BUSINESS WITH THE brick manufacturers of Evansville and other southern Indiana towns is picking up nicely and shows an improvement over last month, and the manufacturers are taking a most optimistic view of the situation just now, and believe that after the Victory Liberty Loan campaign has ended there will be an even greater improvement in building operations. John Andres, secretary and treasurer of the Standard Brick Manufacturing Company, who is also a member of the city water works board at Evansville, stated the other day that the building of houses is picking up in Evansville and that he is looking for a very good season. "In the last few days," said Mr. Andres, "over twenty-five houses have been contracted for, and the building permits are increasing right along. Additions are being built to the Wertz-Klamer Furniture Company, the Faultless Caster Company, the Ideal Dairy plant and other plants. The contract for the new roundhouse for the Louisville & Nashville Railroad at Howell, a suburb of Evansville, is simply being held up until arrangements can be made with the federal government for funds.

"There seems to be more construction in small towns in southern Indiana, southern Illinois and northern Kentucky, near Evansville, than in Evansville itself. Kentucky is more prosperous now than at any time in its history. Coal mines are making big improvements and there is increased activity in the oil fields of the Bluegrass State."

A few days ago the Standard Brick Manufacturing Company shipped a whole barge load of brick to Calhoun, Ky., a live town on lower Green river, to be used in building purposes there. It was announced a few days ago that the Consumers' Delivery Company and McPherson & Foster, box manufacturers at Evansville, will build brick additions during the coming summer months. The new building for the Lamasco Bank, at Evansville, that is going up, will cost about $45,000, and the structure will be completed some time this year. The Showers Bros. Company, at Bloomington, Ind., is erecting a brick and steel factory for the manufacture of kitchen cabinets.

The New Albany Masonic Association, at New Albany, Ind., has purchased a site, on which there will be erected a new Masonic Temple that will cost over $100,000.

The First National Bank, at Huntingburg, has had Evansville architects draw plans for a new bank building, which will be built this summer at a cost of $60,000, the structure to be constructed of brick. Evansville architects also have finished plans for four brick residences at Morganfield, Ky., that will cost from $6,500 to $14,000 apiece.

Building operations in Evansville for March showed a big increase for the permits over the months of February, and it is expected that April will show a big gain over March. Things are looking better every day. Brick manufacturers say that more building will be done this year than was anticipated a few months ago, and that while they do not look for a boom year, they are expecting great things in 1920, and will not be surprised if that year breaks all previous records.

Many public improvements are contemplated for Evansville, and a great many streets are to be built, and some of the streets will be paved with brick. Every day it is demonstrated that nothing is better than brick for streets. Some of the brick streets in the city of Evansville were put down more than thirty years ago and are just as good now as they were when first built. Real estate men in that city report they are busier than they have been any spring for many years past, and they take this as an indication that there is going to be a marked improvement in building operations. Many of the brick plants continue to run on part time only. A few of the manufacturers report that their stocks are running low, while on the other hand some manufacturers say they have liberal stocks on hand.

Many brick manufacturers from Evansville, Princeton, Rockport, Tell City, Huntingburg, Dale and other towns in southern Indiana attended a meeting held at the Chamber of Commerce building in Evansville on Thursday night, April 3, in the interest of good roads. The primary purpose of the meeting was to hear an explanation of the State Highway Commission law that was enacted at the last session of the Indiana Legislature. State Senator Luke Duffy, of Indianapolis, was the main speaker, and he explained the new law fully and answered many questions. Mayor Benjamin Bosse, president of the Dixie Bee Line Highway Association, that proposes to build an improved highway from Danville, Ill., to Adams, Tenn., where it will connect with the Dixie Highway, said that with the improvement and building of good roads in southern Indiana will come the building of a bridge across White river at Hazleton, Ind., and later on the bridging of the Ohio river at Evansville. There never was a time when the enthusiasm for good roads was so intense in southern Indiana as it is at the present time. Brick manufacturers see in the building of good roads in Indiana a wonderful increase in the demand for brick and other building materials during the next few years.

H. C. Kleymeyer, general manager, and John Andres, secretary and treasurer of the Standard Brick Manufacturing Company, at Evansville; Charles A. Uhl, manager of the Uhl pottery, of that city; Aaron M. Weil, president of the Crown Pottery, and Michael D. Helfrich, of the Helfrich Pottery, are among those at Evansville who have been appointed on the seventy-two teams that will have charge of the Victory Liberty Loan in Evansville and Vanderburg county. In the past previous patriotic drives in Evansville the brick and tile manufacturers, as well as the pottery manufacturers, have taken a leading part, and they do not propose to be slackers in the next big Liberty Loan, which is intended to celebrate the coming of world peace. There will be a returned overseas soldier on each of the seventy-two teams of workers in Evansville.

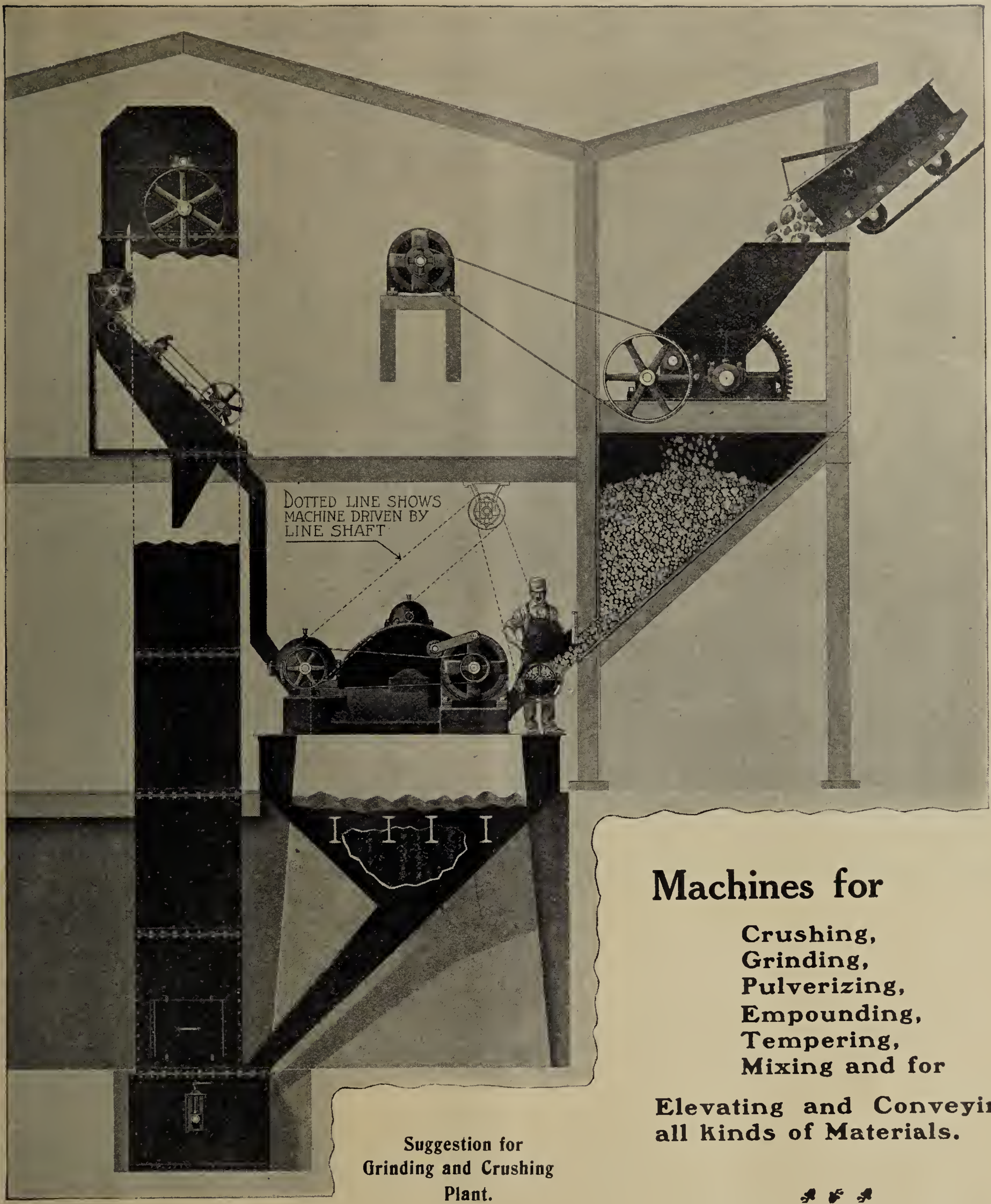
Gil C. Landgrebe, manager of the Huntingburg Pressed Brick Company, of Huntingburg, Ind., returned a few days ago from business trips to Indianapolis and Louisville. Since the recent return of Lieutenant Landgrebe from a training camp he has been extremely busy, and his brick plant has been in operation at full capacity and he has been getting many nice orders from various parts of the country. He is looking for a nice trade all of the present year, he says.

Pottery manufacturers in Evansville report a very good trade and the plants are being operated steadily. Last year was a good year for the pottery manufacturers of Evansville in spite of the car shortage, labor shortage and many other things, but it is expected that the present year will bring in a much larger volume of business than last. The products of the Evansville potteries are sent to many parts of the United States and their business has grown from year to year.

A HOOSIER.

TESTING RAILROAD SCALES.

Railroad scale weights are the governing factor in the matter of freight paid on most brick and tile shipments, so naturally the matter of their accuracy is a thing of importance to the industry, for the product being a heavy one the freight is quite an item in final cost. Before the war came along to upset the regular order of things the Bureau of Standards had some test cars and some splendid work was being done in testing and correcting railroad scales. Freight rates have advanced sharply all around since that time, thus adding to the importance of correct weights, and making this subject a worth-while one to take up and look into.



Suggestion for
Grinding and Crushing
Plant.

Machines for

Crushing,
Grinding,
Pulverizing,
Empounding,
Tempering,
Mixing and for

Elevating and Conveying all kinds of Materials.

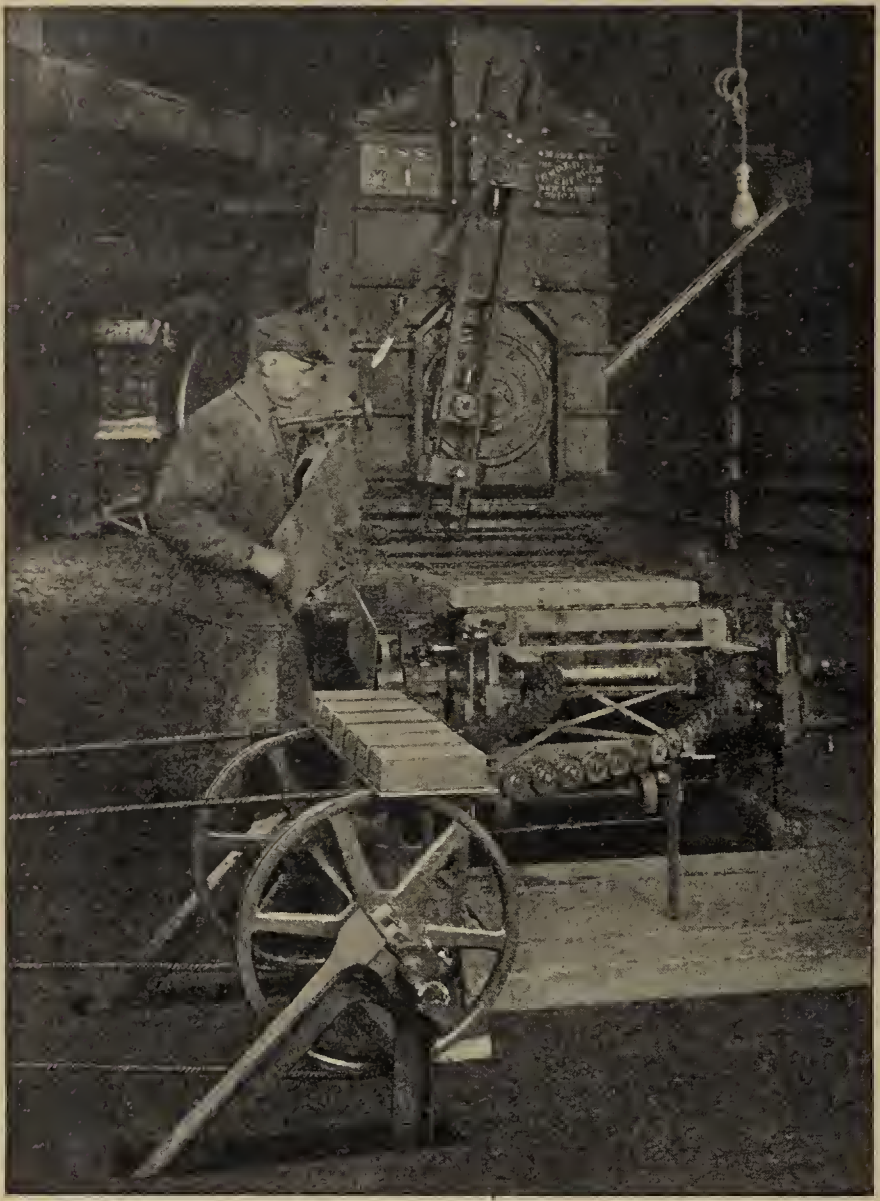
* * *

Steam Presses for Making Sewer Pipe, Drain Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO., General Office and Works, **Wellsville, Ohio**

Engineering and Western Sales Office, Monadnock Bldg., Chicago, Ill.

The S. S. S. Special Automatic Soft Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

TO OUR CREDIT ABROAD.

An estimate by the Guaranty Trust Company of New York of the foreign loans that have been placed in the United States puts the total at $9,483,327,330. This includes both private and government loans on all sides and is somewhat below the popular estimate, but it is a big sum at that. Great Britian stands for nearly half this sum, and next in order of importance comes France with about a fourth of it, followed by Italy with nearly half as much as France. The estimate was as of the first of the year, since which time loans abroad have been added to considerably. So, taking it all together, we have quite a snug sum to our credit among the older countries of the world.

"Thatta Boy!"

"Bully for you and your medal of honor!"

That Victory Liberty Loan button shows that you helped to pay for the Victory we helped to win — it's just as much a decoration for the performance of duty as though you'd won it under fire.

Get *your* button today!

Victory Liberty Loan Committee

AMERICAN CLAYWORKER ABROAD.

We were pleased to receive a few weeks since a communication from Samuel Geijsbeek, of Portland, Ore., announcing his safe arrival in Paris the latter part of March: although the trip across was very rough there was no unpleasant accident. Mr. Geijsbeek expects to remain abroad for some time, as he is keenly interested in the reconstruction work in the war-wrecked country.

Being a citizen of the greatest country in the world carries its responsibilities with it for one must be up and hustling all the time to be fully worthy of the citizenship.

Make Victory Complete

Only by finishing the job can this be done. Only by providing the money to gather up the loose ends and round off the rough, projecting points that still remain.

Our boys made Victory! It's our duty to make it *complete* by an overwhelming subscription to the Victory Liberty Loan.

Victory Liberty Loan Committee

Look for the Green Edge and Gandy Trademark!

That's the only caution necessary to sound to buyers who want to be sure they are getting genuine **Gandy** original stitched cotton duck power and conveyor belts.

All **Gandy** BELTING is red in color, and the bright green painted edge and trademark are plainly visible.

These two distinguishing marks are on every *Gandy* BELT. They're proof of our own faith in our product—our bond to you that we stand back of every inch of *Gandy* BELTING guaranteeing to the limit the material and workmanship, and providing engineering service that insures the very best results.

Gandy gets all the pull from the pulley.

Look for the Green Edge and *Gandy* Trademark.

Yours for service
"On-the-Job" *Gandy*
Service Manager.

THE GANDY BELTING COMPANY
749 West Pratt Street BALTIMORE, MD.
New York Branch, 36 Warren St.

GANDY BELT
"Stitched" Cotton Duck

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ORIGINAL BOSS SYSTEM **Drying and Burning** ORIGINAL BOSS SYSTEM

BOSS TEN-HOUR DRYER

Use either waste heat or exhaust steam.
No live steam. No direct firing.

BOSS SYSTEM OF BURNING BRICK

Applies to all types of kilns and will save HALF in your cost of burning.

Let us save Time and Money for you

JOHN C. BOSS CO.
Monger Bldg., Elkhart, Indiana

YOU HAVE KNOWN FOR YEARS THAT

RICKETSON'S MORTAR COLORS

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

Why Not Insist on Having Them?

They are the acknowledged best for all uses---Mortar, Brick, Cement, Concrete and Stone.

Red, Brown, Buff, Purple and Black.

RICKETSON MINERAL PAINT WORKS
MILWAUKEE, WIS.

Leathers' Mine Motors

Especialy adapted for outside hauls. So simple and so efficient as to be almost unbelievable.

Will replace four mules and operate on five gallons of gasoline per day.

Suitable for Coal and Clay Mines, Limestone Quarries, Brick and Tile Plants, Road Building, etc.

Write today for prices and full descriptive matter.

Brookville Truck & Tractor Co.
Brookville, Pennsylvania

THE TRADE OUTLOOK.

THERE ARE FOUR outstanding features of interest now in connection with the resumption of building operations. They are made up of a country-wide campaign of boosting and building propaganda to stimulate an immediate return to building activity, of more than the usual amount of early building, of value readjustments, and of labor problems.

The first two features indicate on their face that building activity is already getting under headway at a rate that should lead to immediate hustling around in the clayworking industry so as to be prepared to serve the needs. Much of the building in February, March and April, however, must be credited more to favorable weather conditions than to any other influence, and it is too early yet to say whether it is a prelude to a busy summer, or simply an earlier getting at things that were being planned for later in the spring. So this feature, while interesting, is uncertain in significance.

The efforts all over the country at boosting the building game are undoubtedly serving to arouse interest, and in this, if they do nothing more, they will have accomplished the first essential step toward a general revival in building operations. Just how soon the next step may be accomplished, how big it may be, and how much this effort is contributing to its hastening and magnitude, is a question still in process of being answered.

The main stumbling block, the matter that has been the great cause of hesitation, is found in the next two features, value readjustment and labor problems. And since values depend quite largely on wages, it is the labor problem that is the real puzzle. Values are gradually stabilizing themselves on what is regarded as a fairly good post-war basis, and this point would soon be settled if it were not for the matter of wages and the labor attitude generally.

The possibility of labor trouble is the one real cloud on the trade horizon, especially if labor leaders persist in their arbitrariness. We may get some comfort here, even though there are rumblings in the air and some strikes may come, from the fact that there is sound sense at the bottom of the labor mind in this country, as well as in the business world. We may have some labor troubles, but there will be no repetition here of what has been happening in Europe, for this is a different country, and whatever troubles come we will soon find our way through them.

On the whole the outlook is decidedly optimistic, and the present indications are that we are to have a record year in building operations, which in turn should mean a busier time in the clayworking industry than we have had in five years. An early start has been made, favored by mild weather, and the readjustments to a peace basis all around have made such good progress as to be decidedly encouraging. Reading the signs in the outlook one feels like saying that it is not a time for hesitation, but a time for getting busy, for helping to hustle things along. We are a full year behind in building operations and now is the time to start in at catching up.

"SOJERS."

Two trench-stained Tommies, disheveled, torn, wounded and highly untidy, were on leave in London.

They stood in Trafalgar Square, when there approached a detachment of the Windsor Guard in silver trappings, plumed helmets, red coats, long varnished boots shining like mirrors, and kid gloves.

The Tommies look on in silence a moment, then one nudged the other and said in an awed whisper, "Look, Bill—sojers!"

"Even if we were able to get a gang of laborers to dig our shale by hand, it would ruin us to try it.

"We are excavating shale from under the old bed—a level that it did not pay to work by hand methods, even at old-time labor prices.

"We are making forty thousand brick a day, steady output.

"My son is running our ERIE, and he has operated every make of steam shovel that is used in brickyards. He is the strongest ERIE Shovel booster you ever saw; he says that the ERIE is far and away the fastest machine for brickyard digging, and the most reliable, and the easiest to keep up.

"Over there we hit a big outcrop of flint rock. The ERIE went through it without blasting. It was the hardest digging I have ever seen a 20-ton steam-shovel get away with."—J. M. Highhouse, Superintendent of the DUNN BRICK COMPANY'S plant near Erie.

For a RELIABLE supply of raw material from your pit, you need the sturdy ERIE Shovel.

Investigate for yourself. Get the facts before you. Pick the best steam-shovel.

We will be glad to send you a copy of our Bulletin "W." Address:

BALL ENGINE CO., Erie, Pa.

Builders of ERIE Steam-Shovels and Locomotive Cranes; BALL Engines.

ERIE Revolving Shovels

BALL Engine Co. Erie, Pa.

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FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.

WANTED, ETC.

WANTED.

Position as superintendent by a thoroughly practical brickmaker. Address,

J. A.,
11 tf d Care Clay-Worker.

WANTED—DRYER CARS.

Second hand 28-inch two-deck dryer cars, 83 inches in length overall. Must be in good condition. Address,

CARS,
4 1 d Care The Clay-Worker.

WANTED.

1—4-mould dry press brick machine.
1—Standard 9 ft. dry pan.
1—5-ft. piano wire screen.
1—Agitating dry clay feeder.
1—Elevator belt equipped.
1—Elevator pit pulley housed.

HOUSTON BRICK WORKS,
P. O. Box No. 203 Houston, Texas.
4 3 cm

WANTED

A situation as superintendent of brick or tile plant; am fully competent as a manager and also as a burner, familiar with all styles of kilns, etc., a man of mature years, of good habits and will guarantee efficient service and good results. Address,

KENTUCKY,
4tf d Care The Clay-Worker.

WANTED.

Experienced Ceramic chemist, to be responsible for chemistry and kiln burning departments of old-established clayworking concern. Experience in enamel brick, terra cotta, tile or faience absolutely essential. Reply stating experience and salary expected.

CHEMIST,
3 2 d Care Clay-Worker.

WANTED.

A good man with some knowledge and experience in the installation of brick, tile and sewer pipe machinery to act as assistant sales manager for a clay machinery manufactory. Reference required. A good place for a dependable man. Address STEAD,
3 2 d Care Clay-Worker.

WANTED.

Ground fire clay, very plastic, in considerable quantity. Address,

BOX 674, General Postoffice,
3 1 d Toronto, Ont., Canada.

WANTED.

Small size American pulverizer. Must be in good condition. Address,

F. B. MOUDY,
4 3 c Portage, Pa.

WANTED.

Position as a paving brick or sewer pipe burner. Am well qualified and steady. Address,

BURNER,
4 1 cm Care The Clay-Worker.

WANTED.

Position as superintendent. Have had varied experience producing fire clay and building brick products. References. Address,

L. H.,
4 1 1pm Care The Clay-Worker.

WANTED.

Conveyor belt approximately two hundred feet long, about twenty-four inches wide. In answering, state price, give length, and full details concerning its condition. Address ALABAMA,
3 2 d Care Clay-Worker.

WANTED.

Superintendent for brick plant; manufacture paving blocks. One who understands all about the manufacturing of vitrified blocks. Would be directly under manager. Address,

GOOD MAN,
3 3 d Care Clay-Worker.

WANTED.

Foreman for established brick plant making dry press and stiff mud face brick in Denver. State age, experience and salary expected in first letter. Address,

THE COLFAX PRESSED BRICK CO.,
420 Exchange Bldg., Denver, Col.
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THE CLAY-WORKER

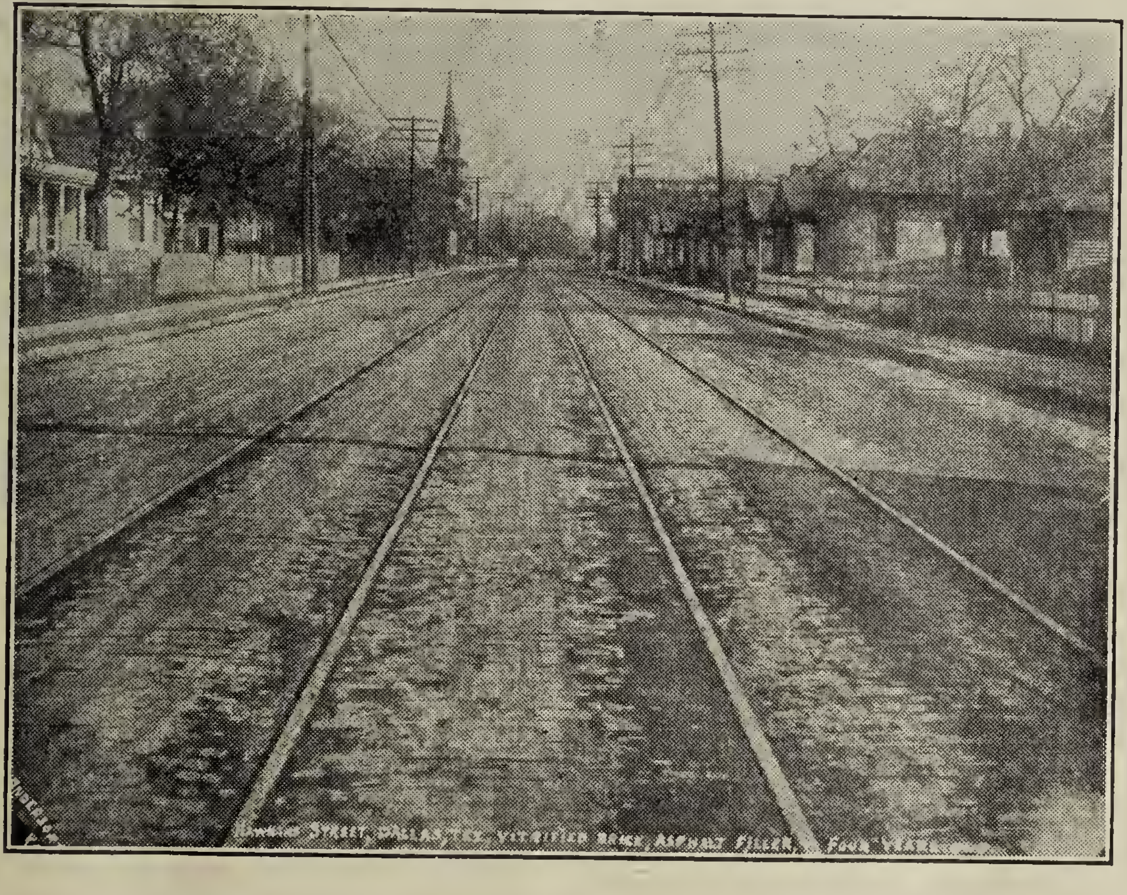
THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, MAY, 1919. No. 6.

PERMANENT HIGHWAYS: A System of National Highways Essential To Industrial Progress. Chamber of Commerce of the United States Urges Congress to Aid in Construction of Same. Examples of Vitrified Vertical Fibre Brick Pavement with Asphalt Filler Which has Proven by Actual Test of Use, A Most Durable and Satisfactory Road Inprovement.

WHEN THE Committee on Resolutions made its report to the Chamber of Commerce of the United States at the closing session of the recent national convention at St. Louis, one member questioned the use of the word "permanent" in the resolution on highways, saying there was no such thing as a permanent highway. The chairman of the committee explained that in the connection referred to, the word applied to types of pavements, not to any one particular kind of pavement, and the resolution was adopted unanimously. It reads as follows:

"That highways are an integral part of our nation's system of transportation has been emphasized by the war, and an enormous development is at hand, so important as to require a comprehensive national policy under which federal appropriations for highways will be applied to national needs for interstate commerce, agriculture, postal delivery, common defense and general welfare.


Street, Dallas, Tex. Vitrified Brick, Asphalt Filler. Four Years

A Dallas, Texas, Street paved with Vitrified Vertical Fibre Brick, Asphalt Filler, as Good as New after Four Years Use.

"Congress should create a federal highway commission, independent of present departments of the government, composed of members from the different geographical sections of the country, to perform all executive functions of the federal government pertaining to highways including those relating to existing appropriations in aid of state construction. Such a commission should act in co-ordination with any federal agency that may have functions of articulating rail, trolley, water and highway transportation.

"Congress should make substantial appropriations for the construction and maintenance of a national highway system to serve the need for the maintenance of interstate travel and traffic. The Commission should report to Congress a plan for continued aid for state construction of highways in the period beyond 1921, to which time the provisions of existing federal aid laws extend.

"Expenditures of funds should be permitted only for highways which are of a permanent type, having thorough drainage, substantial foundations, sufficient width, and a capacity for traffic which will be reasonably adequate for future needs."

As the conscientious objector declared, there is, literally, no such thing as a permanent highway, but there are highways that are permanent in character compared with temporary highways. For illustration, the dirt road is a temporary highway. The macadam road is less temporary and more permanent. By the same token, any hard surfaced highway is still more permanent. A highway surfaced with vitrified paving brick comes the nearest to being a **permanent highway** of anything yet devised by man, so we beg to say to the conscientious objector that he will find on careful investigation that a well constructed brick paved roadway is to all intents and purposes quite permanent.

We are pleased to present illustrations of a type of brick paving which is fast gaining great favor in the Middle West. It is known under the trade name of Vitrified Vertical Fibre Brick Pavement. It has proven so durable that city officials and county engineers who have observed its resistance to traffic of all sorts, refer to it as a permanent improvement. Referring to this phase of the subject, the Western Paving Brick Manufacturers' Association, to which we are indebted for the accompanying illustrations, calls attention to the fact that modern paving is a distinct branch of modern engineering, like bridge design, railroad construction, or any other distinctive technical line of work. It is insisted that with proper construction a highway surfaced with **vitrified vertical fibre brick** will, with a minimum amount of attention and cost for repairs, serve satisfactorily not only this but succeeding generations; this certainly may properly be termed a permanent highway, and it is equally well adapted to city streets or country roads.

Vertical Fibre Brick Paving differs from ordinary types in that the brick are laid on the flat instead of on the edge. This results in materially reducing the first cost, and whether laid with an asphalt or a cement filler, a smooth, clean wearing surface is obtained which affords easy traction and yet avoids all tendencies to slippery conditions which ofttimes are disastrous to motor driven vehicles. With this form of construction, less concrete is required for foundation purposes, and so economy, efficiency and durability go hand in hand. Lancaster County, Nebraska, in which is located Lincoln, the capital of the State, boasts that it now leads all other counties in the state in the amount of paving laid in the last two years, 95 per cent of which County Engineer Arthur H. Edgren states has been surfaced with a standard three inch vertical fibre brick, with an asphalt filler, and he adds, "We have found the three inch vertical fibre brick the most satisfactory surface for rural paved roads, and expect to see many miles of **fibre brick paving** laid during the coming season in this county."

Boulevard, Garnet, Kansas, Paved with Three Inch Depth Vitrified Vertical Fibre Brick with Asphalt Filler.

Owing to the high cost of all materials, transportation, and construction, the first cost is now a serious problem in many communities, hence it behooves engineers and surveyors to consider well such pavements as we illustrate. For instance, that of the Clayton Road, St. Louis County, Mo., a heavy traffic highway which has proven in every way satisfactory. It is surfaced with vitrified brick laid on a two inch sand cushion over the old road bed, the cushion consisting of one part cement and four parts sand or lime stone screening. As it meets every requirement, isn't it an example of wise economy as compared with brack paved roadways on more expensive concrete foundation? County surveyors and engineers may well consider this phase of modern highway improvement very carefully.

The improvement of our main highways is a national need. The work should be done well with a view to ultimate economy, and this can best be obtained by the use of vitrified brick as a surfacing material. We commend to our readers the able paper on The Construction of Brick Roads by Harvey Adams, of Danville, Ill., on a subsequent page of this issue, in which these important matters are considered at greater length.

We advocate brick paved highways because they are as nearly permanent as anything man made can be. The closing paragraph of the resolutions quoted well bears repetition in this connection, for if observed brick paved highways will predominate throughout the nation. We quote:

"Expenditures of funds should be permitted only for highways which are of a permanent type, having thorough drainage, substantial foundations, sufficient bridge, and a capacity for traffic which will be reasonably adequate for future need."

Roanoke Road, Kansas City, Mo., Vitrified Four Inch Depth, Vertical Fibre Brick Pavement with Asphalt Filler.

Should Build Roads to Meet Requirements Ten Years Hence.

"Roads must be built with the requirements of ten years in the future in mind," says R. E. Fulton, Vice President of the International Motor Co. "There are 500,000 motor trucks in use in this country and it is estimated that within the next five years the number will not be less than 4,000,000."

"We have seen the impossibility of keeping traffic down to what roads will stand," said Mr. Fulton. "Roads exist to serve the needs of the people, which can hardly be restricted to road conditions. Roads must be built up to traffic requirements, with the idea of transportation economy in mind. Low cost of road building that means high cost of transportation is penny wise and pound foolish.

"Where light vehicles are sufficient for the requirements of the traffic comparatively little road repairing is necessary; but where the traffic is heavy the roads must be built to stand it. The greatest economy in transportation lies in large units. One driver operating a large truck does the work of two or three operating small trucks. The maintenance, rent, and operating costs of a large truck are much smaller in proportion than for a number of smaller trucks providing equal capacity. It is an established fact that a 50 per cent. increase in capacity gives a 15 per cent. decrease in transportation costs. Fifteen per cent. saved on all motor transportation where larger units are needed would mean a saving of several hundred million dollars each year to the people and effect a substantial reduction in the cost of living.

"The weight motor trucks impose on road surfaces is limited to 800 pounds per inch width of tire. Consequently a large truck exerts no more relative pressure on the road surface than a small one."

HAUL 25 TONS OF SHALE BY TRACTOR ON ONE TRIP.

The Salverson Brick Company, Petersburg, Ill., who purchased a tractor to haul shale from the coal mine to the brick manufacturing plant, uses it to handle five wagons, each carrying five tons, aggregating twenty-five tons a trip. The roads have been bad or the haul could be increased. As soon as the mud dries, the company will add another trailer, bringing the total pull up to thirty tons.

One of the things we were confronted with frequently during the war time that most of us don't want to see or hear again is that word priority.

CONSTRUCTION OF BRICK ROADS.

Some Interesting Statements of Facts Regarding Road Building Legislation and Proof Positive That Brick Roads are Best and Cheapest.

By Harvey Adams.*

THE CHICAGO TRIBUNE is a great journal. It is the greatest journal in the world. As I read an editorial in it last Sunday entitled "Push the Road Program," I felt a distinct shock. In fact I felt two distinct shocks, one immediately following the other. Speaking of the Road Program in Illinois, which is now ready to start, but being held up because of the high price of cement, the editorial says: "We do not know that cement is indispensable to the Road Program. It may be that roads cannot be built without cement."

The first shock I felt was delightful to discover that so great a journal as the Tribune should call the attention of the public to so vital a question at this time, when the Governor's great program of road construction to give employment to labor, is about to be defeated by the high cost of cement. By propaganda of every sort, text books written by cement experts, etc., the cement interests have succeeded in actually warping engineering opinion, until many road engineers in the country think of road construction only in terms of "Cement." The second shock I felt was upon realizing that this propaganda had gone so far and become so general that even the editors of this great paper should wonder whether roads could be built without cement.

I do not need to remind you that Brick for buildings and Brick for roads is as old as history itself. The Appian Way built by the late Julius Caesar (as Mark Twain refers to him) did not have any cement expert on the job to give the latest guess as to expansion joints. Napoleon, in the days when he was re-arranging the map of Europe, built roads, lots of them. Up in Holland he found roads already one hundred years old, built of brick, and he profited by that good example and built many more of them. Sixty-five percent of all the roads in Holland are built of brick, laid on a gravel base. In every city of Europe brick pavements always have been common, long before the "Cement association" was formed. And in our own country the same is true. Every city in this country has relied upon brick pavements for its heavy traffic streets. Every town in the middle west which has grown into a small city during the past fifty years has built brick pavements. Not perhaps the modern big paving block of vitrified shale, but common brick, little brick, many of them made of local clays, and it is upon the good reputation for durability and least expense of upkeep of these little brick that we now base our claim to "superiority" in pavements.

Lately concrete has gained a wonderful run, and is now enjoying great popularity. Some propagandist styles this as the "Age of Concrete." Concrete houses, concrete bridges, concrete walks, silos, horse troughs, and what not, for the city and country. You may think from what I say I'm peeved or sore at the Portland Cement Association. No, I'm not. On the contrary, I admire them. They've been good advertisers, and by promoting publicity propaganda, have created a great demand for cement. What provokes me, however, is the fact that we clay workers have so failed to boost and promote our own product, which is far superior, that an imitation has out-stripped us in popular favor.

Getting back to roads: Some of our modern ideas of brick road construction have been unfortunate. There have been failures, we frankly admit it. As long as we stuck to brick laid on stone, gravel, sand etc., we were wise and safe and sensible. Such roads have always been a good investment, with the least possible amount of cost for repairs and up-keep. Brick laid upon a second course of brick, the first course being laid flat upon the excavated earth, then rolled, then covered with sand and templated off, then covered with another course set upon edge—all this was good construction. This gave us an eight-inch pavement, interlocking, flexible, no trouble with expansion joints in any kind of weather whether hot, cold, wet or dry. That type also provided a good place to bury and dispose of our second grade pavers, which are good enough for foundation but not good enough for wearing surface, and let me say that if the average manufacturer of paving brick could get back to the point where he could dispose of his seconds, at cost even, not at a profit, but without loss, the net results of his year's business would be vastly better.

Harvey Adams, Danville, Ill.

We came to be weaned away from those good old reliable types of foundation by cement, just why, I do not know. Cement was so cheap, probably it was found we could put in a concrete base cheaper than brick. At least, we fell for the seducer and adopted concrete for a base. Then we went from bad to worse, through all the gradations of cement in the base, sand cushion on concrete, concrete filler on sand cushion, until we finally wound up at the monolithic type, and semi-monolithic types, which are eminently good, but regarded as too expensive. What profiteth a brickmaker if he beat the whole world in design, and then lose the job because of excessive cost?

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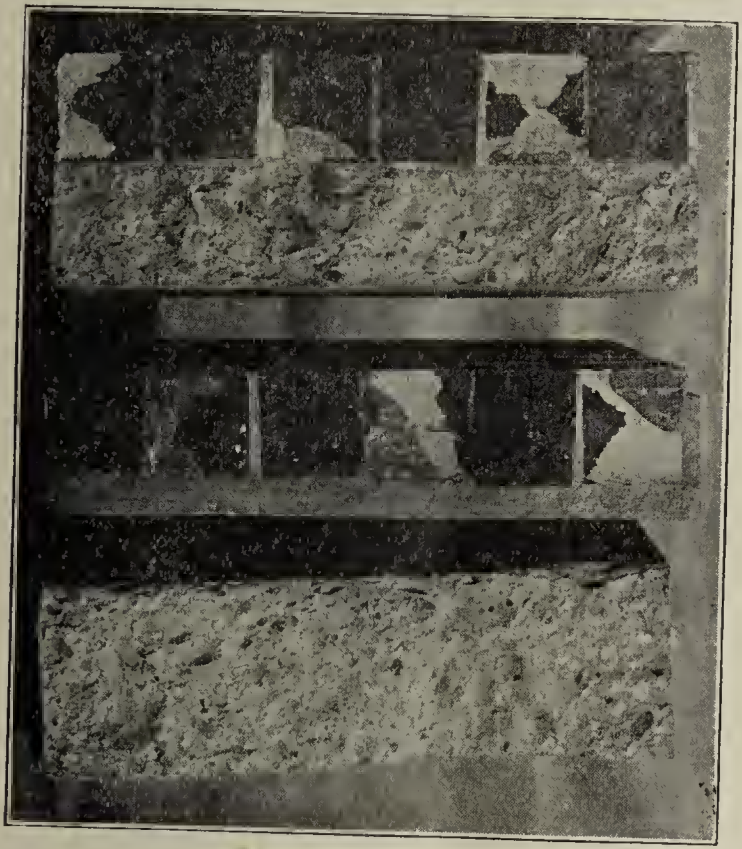
*Read before the Illinois Clayworkers' Association, Chicago, April 10.

Most of the face and common brick fellows have failed to follow us so far, haven't you? We are so far from base, from first principles, that we admit we have led our industry to a concrete tomb. Now before the tomb is sealed, and we are eternally done for, we hope for some mighty voice to come along just in time and say, "Lazarus, come forth," and stop the funeral. That Tribune editorial is the first note of awakening. I hope it is the "Lazarus, come forth" for which we have been looking.

And now a word about this monolithic type. It has a very impressive name. It sounds classical and learned. Mono—one; Lith—stone; one stone. One slab made up of brick, sand, cement all placed and set up in one transaction, into a solid slab. It is in fact a **concrete road**, with a brick in it. Concrete roads are made up of cement, sand and coarse aggregate, all placed and set up at one time into a solid slab of stone and is itself a "monolith." This type of brick road is also made up of cement, sand and coarse aggregate, all set up at one time. In this instance, the coarse aggregate is extremely coarse; it is hard-burned paving brick. This slab is exactly like the concrete road in principle of construction. We have no quarrel with the concrete road. It is the **coarse aggregate** of that type which marks its wearing quality. This principle for a better wearing surface is recognized and followed in the celebrated Wayne County Roads Detroit, where trap rock or Wisconsin granite is specified as the aggregate for the top coarse; but we believe it can be improved by inserting brick in the surface. The presence of brick in a concrete slab reinforces its load-bearing strength.

The three slabs illustrated were made for the first experimental test of comparative types in the laboratory of the Engineering Department, University of Illinois. When broken as a beam between points 42 inches apart, the lower slab (7 inch concrete) sustained a load of 12,000 pounds before breaking. The upper slab (8 inches) composed of concrete and brick, sustained a load of 21,500 pounds before breaking. This clearly indicates the presence of brick in the slab increases its strength; and that a monolithic slab of less depth (saving the cost of excess concrete) develops a sufficient load-bearing strength, equal to the ordinary concrete road, and more efficiently resist road traffic. A long series of subsequent tests prove this theory conclusively. A six-inch concrete road sustains the ordinary road traffic; a six inch monolithic brick slab, which develops great load bearing strength, is not only equal, but superior to it.



Slabs Used in Experimental Test, University of Illinois.

Since the amount of load-bearing strength needed in a given highway is the thing which decides the thickness of the concrete slab, the thinner brick slab of equal and sufficient load-bearing strength with it, should be specified in competition. However, engineers frequently specify a monolithic brick slab 25 per cent. to 35 per cent. thicker for the same work—an unintentional discrimination, which in effect designs brick off the job.

The thinner monolithic slab because of its increased strength, was first approved by the late W. W. Marr, Illinois State Highway Engineer. It is no longer an experiment. Even 5-inch monolithic brick roads under constant heavy traffic for three years are giving perfect satisfaction, and it is especially adapted to medium traffic country roads. At Mr. Marr's suggestion, a set of experimental roads were built on a highway west of Danville, Ill., over which the coal supply for city use, is hauled in steel tired wagons. That experiment of 5-inch, 6-inch and 7-inch monolithic slabs, (16 feet wide) now four years old are in perfect condition, and clearly demonstrate the practicability of such pavements of less concrete base, thus saving the excessive cost of material.

Six and one-half miles of country road leading to Stockland, Iroquois County, Illinois, most of it three years old is another good example of this type of road. This 5-inch monolithic slab is also especially good for resurfacing old macadam, concrete, or other wornout highways where the compacted old base may be utilized. The machinery is extremely simple and inexpensive—small mixer, hand template and hand roller.

Why A Brick For The Coarse Aggregate?

Shale in the process of making it into paving brick is ground into dust, then by the application of water made into a plastic column, and after being cut into brick and dried, is burned in a down-draft kiln and finished at a temperature of 2,000 degrees F. Brick thus made have been tested in many ways in the laboratory at the Engineering Department, University of Illinois. One of the tests showed the following results, when compared with conrete of the ordinary variety.

	Concrete	Brick
1. Tensile strength (lbs. per sq. inch)......	520	1,400
2. Beam or breaking strength (lbs. per square inch)	490	2,700
3. Crushing strength (lbs. per square inch).	4,200	12,600

Note.—This required a total load of over 400,000 pounds, (300 tons) to crush the brick.

A further comparison may be made by making a series of concrete blocks, of equal size with paving brick, and submitting them to a test of abrasion. Such a test was made by W. R. Schoonover, C. E., of Indianapolis, of concrete blocks made according to the specifications adopted for the Vermillion county roads. After being rattled 20 minutes concrete showed a loss of 70%. It was impossible to run it as long as required, as there would have been nothing left of the concrete specimens. The test showed, however, that concrete cannot stand the shock of severe traffic. And that in the abrasion test, brick are seventeen times stronger than concrete.

These tests for tensile strength, beam strength, crushing strength and wear and tear or abrasion, clearly show that the presence of hard-burned brick in a concrete slab assures it the one element which concrete now lacks—durability.

We have a fear that the State Highway Department has overlooked the value of the University experiments, and are designing brick slabs thicker than concrete slabs without reason. While if they would follow the experiments as a guide, they would design the two slabs of equal thickness, to say the least, if not make the brick slab smaller in depth, because of its greater beam strength.

Furthermore, it would seem that although their own reports show the maintenance of the surface of the concrete roads is already eight times more expensive than brick surfaces, the State Highway Department does not take "maintenance" and wearing surface sufficiently into consideration. State roads are of a permanent character. The best surface for the long run should be given first consideration—the cost second.

The Portland Cement Association, acting on their own interpretation of the present policy of the Illinois Highway Department, is sending out a postcard over their own signature, which says:

> "Invest your share of State Aid in concrete roads, and you can turn over to the State for full maintenance the most miles for your money.
>
> "The State agrees to maintain a concrete road for all time at no further expense to you tax payers. What more can you ask?"

And the card concludes by asking us to "think it over."

We do not charge the State Highway Department with such a short sighted policy. Cheapness, we hope, is not the only item to be considered.

Conclusion

Instead of adopting a 5-inch slab, 6-inch slab, or even a monolithic slab, with its better wearing surfaces, the same thickness of concrete, the cost of a pavement of brick would be within the range of possibility for the state roads of Illinois. But by designing the brick slab 20% heavier than concrete, puts brick just that much farther away in competition, and puts the brick industry out of consideration for the Illinois state road program, if first cost and not durability is to determine the type of road to be adopted. However, we hope to call their attention to this apparent discrimination against brick roads, and have them recognize, if we can, the standard, old fashioned type of construction which have made brick the oldest, best, and least expensive of any roads which have yet been designed in this country.

PENNSYLVANIA FIRM MAKES DUNN WIRE CUT BRICK

The Philadelphia Vitrified Brick Company, Philadelphia, Pa., has engaged in the manufacture of wire-cut lug paving brick under license contract with The Dunn Wire-Cut Lug Brick Company of Conneaut, O. The eastern works of the company are at Saxton, Pennsylvania. Charles D. Ames is president of the company and J. T. Hawthorne is secretary and treasurer. The addition to the plant of the Philadelphia Vitrified Brick Company makes 75 plants making wire-cut lug brick in 12 states.

The natural desire is to have jobs for all jobless men, but if there is a shortage of jobs, preference should be shown the returning soldiers over the returning war worker who went away for high wages, even though the work he did was essential to war activities. It is the fighting men who come first.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

AN OPEN WINTER left no frost in the ground and brickmakers were able to get about their plants early. Shortly after the middle of April some began work. Along the Hackensack the larger plants have been in operation more than a month and some have their first arches laid in preparation for burning. Others have their yards covered with brick. Still others have only begun. In other northern sections the work is in different stages of advancement. Apparently a few are not going to undertake extensive operations this season. A few, perhaps, have opened their yards for the last time.

Some demand is beginning, but as yet the situation has not developed so it is possible to determine what is to be done in the various cities in the way of structural work. In nearly all communities in the state, regardless of the size, the necessity for new dwellings and some new business buildings is apparent, but this doesn't say that they are likely to be built this year. Capitalists and others who loan money for building operations are not yet satisfied to begin loans again and the situation offers little indication of improvement. However, the necessity is so great in some localities that something will have to be done.

Not many sales are reported. Here and there some business is done and when it is full outside prices are charged. Common brick are ranging as high as $16.50 and $17.00 in Newark. In Jersey City they are $15.00 to $16.00. In Patterson the price ranges from $15.50 up. In Hackensack the price is $13.00 at the yards and $15.00 delivered. Englewood is quoting about $17.00 Passaic is getting about $15.50. Perth Amboy quotes about $13.50. Trenton has various prices, ranging from $13.00 to $15.00, depending upon the quality. These figures are approximate. Perhaps they will shift as the season advances; perhaps they will remain as they are. Builders hope the tendency will be downward, while manufacturers and brokers are confident they will remain as they are or advance. Much depends upon what makers do. If they turn out the usual quantity prices will hardly advance. If building operations do not develop as is hoped quotations are quite likely to go down. It is impossible to say just yet what will come of the present situation. Few think they will remain as they are, but whether the movement will be up or down is a question which must be left to time to decide.

Nathan H. Sloan, broker, of Paterson, says that he is getting more inquiries, but that actual sales are relatively small. He doesn't look forward to much improvement in the situation until building operations begin, and no one can say what the course of events will be. He says that a number have asked for quotations, but when they hear the prices they cease discussing the question. It seems that prices are held firmly, on the lines he handles, and concessions are not easy to obtain. His business has not been good since the government imposed its restrictions, but he sees gradual improvement and hopes to see things take the upturn shortly. He has just received new lines of samples from the firms he represents and now has a selection which should suit the most exacting builder. His latest order was for a 16-family apartment house now in process of erection.

One of the difficulties with which the brickmaker and dealer must contend is the discontent of labor. While they got by May day without a strike in some departments, in others the workers have been out for weeks. They are all demanding $6.50 a day and as this is written the question is not settled, but it was understood that employes intend granting the figure asked, realizing the higher costs of every commodity are gradually forcing the workingmen to the wall. Rents have been advanced in every city in northern New Jersey and it is rumored that still further advances are under contemplation. The outlook is not promising. Employers no longer find fault with workers for wanting more pay. They give it if they can, but with all building expenses as high as they are now the advance in wages will still further restrict the erection of new structures.

High rents are driving many to buying. Furthermore, real estate operations in northern New Jersey have been very numerous this season thus far. A great many who have hitherto rented are buying dwellings to protect themselves against exorbitant rents and against danger of being ordered out because the property they lease is sold. So many are buying that it makes other renters feel uncertain about their stay. But this is a part of the great movement for readjustment.

Paterson is suffering somewhat in the exodus of Italians to their home country. How many will go it is quite impossible to say. Owners of brick yards in the vicinity, those who have houses to rent and others in various kinds of business feel the loss of these workers. It will make some difference in that city in the requirements for certain classes of flats. Not so many will have to be built and the money needed for their erection can be used for other classes of buildings which will be required just the same. It is too early to make a statement with any pretensions to accuracy, but it is known that conditions will change materially in a number of different ways because of this exodus. A number of manufacturers are contemplating the erection of new mills as soon as building operations can be carried along without too great expense. The mill space in the city is too small to accommodate those who want to begin business and further mill buildings will have to be constructed.

In Newark report has it that building operations are opening about up to normal. The last week in April and the first in May saw a great number of permits granted and builders said they were going ahead immediately with their operations. Many dwellings, a good many business buildings and a number of factories are contemplated. Among the latter is Henry Ford's new building which is to be 950 feet long, 150 feet wide and four stories high. He has one plant in operation, but this bigger one is to be put up this season.

A. L. B.

NORTHERN OHIO SECTION AMERICAN CERAMIC SOCIETY

The fifth meeting of the Northern Ohio Section of the American Ceramic Society was held at the Portage Hotel, Akron, Ohio, on April 28.

In the morning a visit was made to the plant of the Goodyear Tire & Rubber Co. After lunch at the hotel a trip was made through plant No. 1 of the Robinson Clay Products Co. This plant is devoted to the manufacturing of stoneware including large and intricate chemical shapes.

A short business meeting preceded the program.

The first paper of the afternoon was given by Prof. Hewitt Wilson, Ohio State University, on "Glaze Studies." This was followed by a talk on "The Present Trend in Porcelain Manufacture" by Mr. E. T. Montgomery of the Jeffrey-Dewitt Co., Detroit, Mich. Mr. William P. Blair, secretary of the National Paving Brick Manufacturers' Association, gave a very interesting talk dealing with present day requirements for both art and utility in all kinds of brick construction. The program was closed with an illustrated talk by Mr. E. P. Poste, Elyria Enameled Products Co., Elyria, Ohio, on the "Manufacture of Enameled Ware."

The attendance was good in spite of the bad weather.

MOTOR TRUCK FREIGHTING.

THE MOTOR TRUCK is not only the thing of the day for local delivery in the brick trade, but it is becoming a factor of decisive importance in beating the railway game and freighting to distances undreamed of a few years ago. We have almost reached the point where the average common brick man can be practically independent of the railroads if he has good roads surrounding him.

Some interesting facts and pointers on this subject are furnished in an article prepared by R. E. Fulton, Vice President of the International Motor Co. Mr. Fulton points out that shipping by motor truck means less handling, eliminating at times as many as five handlings. This is an important point to the brick trade as it means the saving of cost as well as the saving of brick. It saves loading into cars, then out again onto wagons or trucks at destination, and becomes quite an item when we measure it up all around.

Also we are being given some new light on distance. Heretofore we have thought ten or twelve miles a practical thing, and have talked interestedly about twenty and thirty miles, but now we are having the average raised to from 100 to 300 miles, with special instances of 400-mile trips successfully made. Even a limit of 100 miles opens up a new vista of possibilities in the brick trade, for it is within this radius that most of the brick shipping is done. If the motor trucks can demonstrate their ability to beat the railroads in freighting brick up to 100 miles it means a new era in the clay working industry, an era in which the freighting will be under the direct control of the brick man and in which handling may be reduced to loading into the trucks at the plant and unloading at the job where the brick are to be used.

A schedule of a series of distances and the time made by a 7½ ton truck covering nine routes in the east, compiled by Mr. Fulton, shows an average distance travel of about eight miles an hour. This is a good showing for a heavy truck and as it is taken from the record of a fleet of trucks which have been in operation for four years, it may be accepted as reasonable and practical.

His conclusion is that within a range of from 50 to 100 miles the motor truck is today easily a competitor on better than even terms with the railroads. Now, since this distance covers the main field of delivery for the average brick man, it looks like the time is here for those brick men in localities where roads will permit it to get busy at solving their own freight problems with the motor truck. And where the roads are not such as to encourage effort of this kind it is time to get busy agitating road improvement, for it is good roads and motor trucks which promise to furnish the real solution to the problem of transportation especially over such distances as the average brick man is called on to make.

CELITE APPOINTS NEW REPRESENTATIVE

The Celite Products Company takes pleasure in announcing the appointment of Frank Bethune, 808 Perdido St., New Orleans, as their representative for the Louisiana & Mississippi district.

Mr. Bethune is widely known and possesses engineering knowledge and sales experience that will enable him to sucessfully handle the wants of their customers in this district. A warehouse stock will be carried to insure prompt deliveries of Sil-O-Cel brick, powder and cement for insulation, also Filter-Cel for filtration.

THE USES OF REFRACTORIES, Continued

Refractories in Coke Ovens

THE IMPROVEMENTS in coke oven construction are probably greater than the improvement in other type of furnace. The improvements in quality of refractories are just as great as the construction improvements while the increase in tonnage of coke produced is enormous.

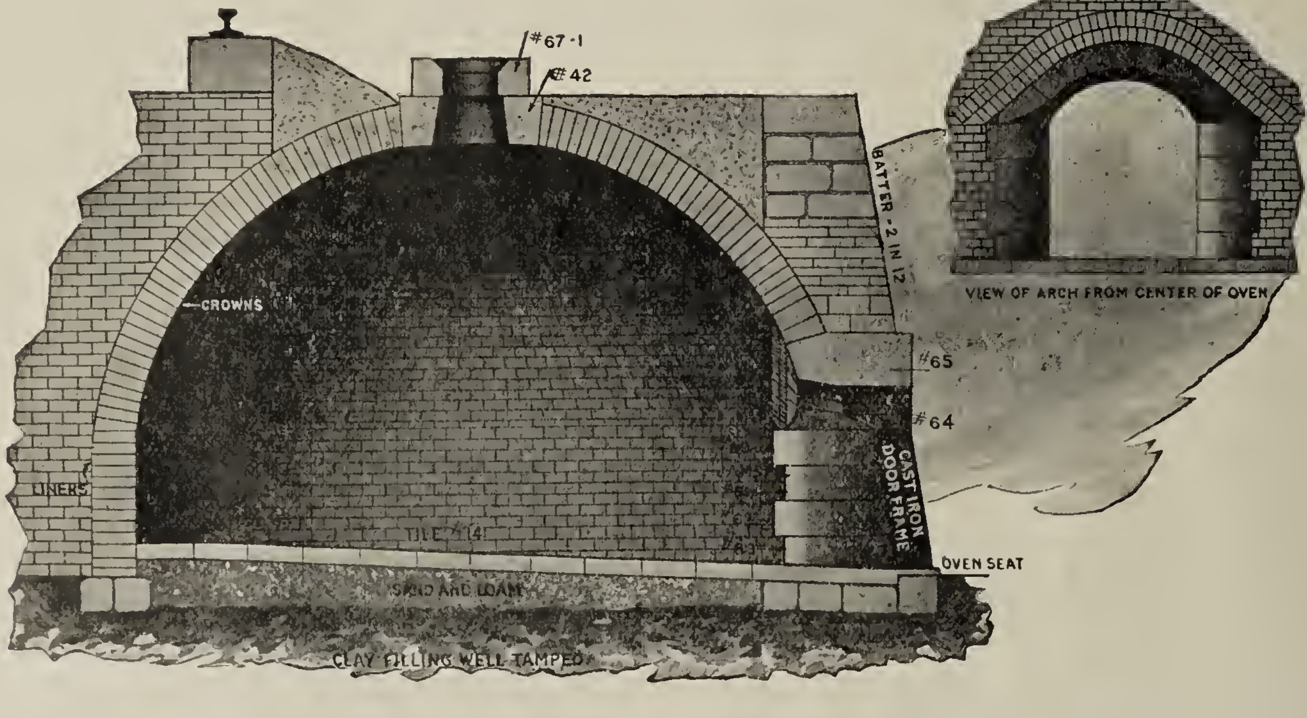
Coke was made on a small scale as early as 1850. The production in 1911 was 36,000,000 tons and the increase since then, especially during the war, has been even greater. By-product ovens were introduced about 1893 but were not used to any extent. In 1897 the production was about 262,000 tons and increased to 4,500,000 tons in 1906 and to 5,400,000 tons in 1911. Since then the increase in by-product oven production has probably been greater in proportion than the increase of tonnage manufactured in the older type of coke ovens.

The losses are so enormous in the ordinary types of coke ovens that legislation should insist on the discontinuation of this method of manufacture as fast as the units wear out. A trip from Pittsburgh into West Virginia along the Monongahela river through one of the districts where there are a good many coke ovens of the beehive type would be of great interest to any one desiring to get an idea of the millions of tons of volatile carbons that are wasted every year that could be recovered with by-products coke ovens.

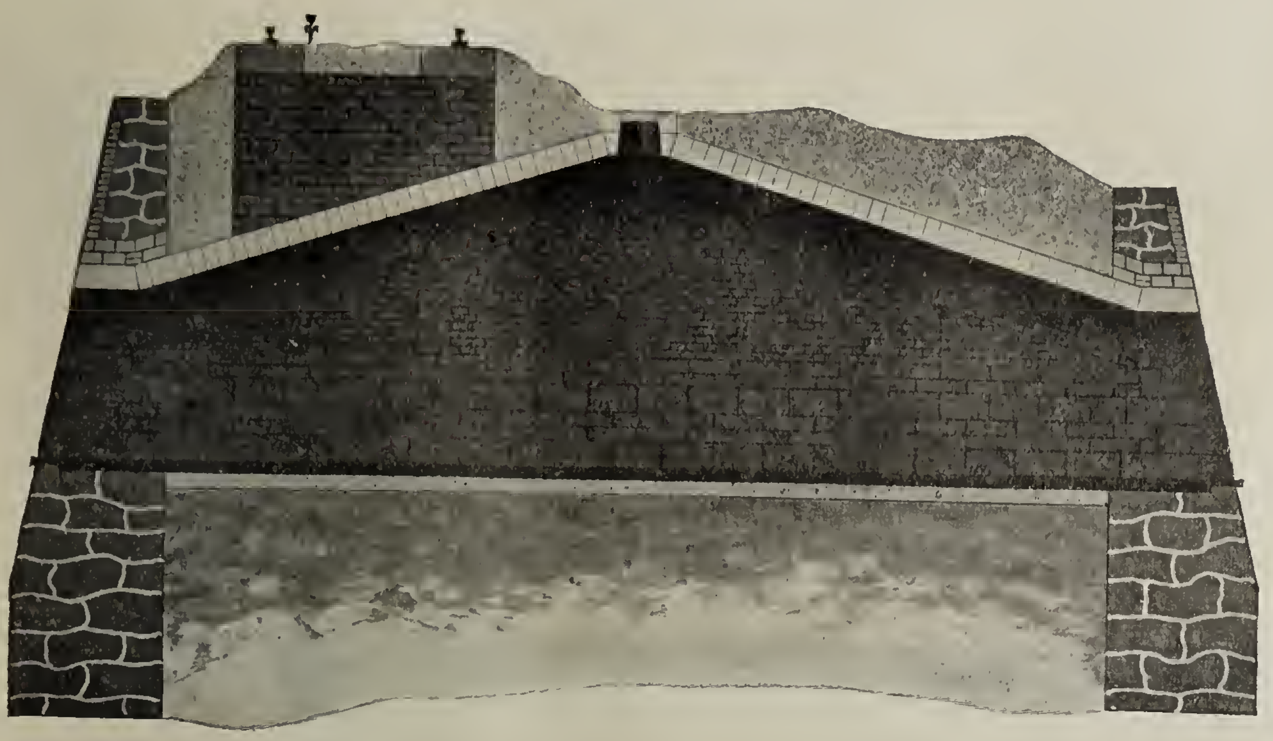
The method of coking, of course is very well known. Coking bituminous coal is subjected to heat in a vessel, in which the volatile constituents may be distilled leaving the fixed carbon and concentrated fixed impurities in the form of coke. The heat for distilling the volatiles is furnished by the combustion of part of these volatile hydrocarbons. The rest of the volatiles, as mentioned above, are wasted or recovered, depending upon the type of furnace used.

The Beehive Coke Oven is illustrated in figure 1. A similar oven usually faces the opposite way with a railroad track above, between the two ovens. The illustration shows only one of the rails of this supply track. The ovens are placed in batteries, some of them being of great length. The inside dimensions of these ovens are usually about 12 feet 6 inches in diameter and 9 feet from the floor to the crown. The walls are made of high grade fire brick but the crowns are made of silica brick bonded with lime. Previously quartzite was used but experience has shown that the regular grade of silica bricks are of longer life. In using these bricks it is very important that proper joints be allowed, to allow for the necessary expansion. The fronts and floor tile are of fire clay. The door, particularly, must be of proper strength to resist abrasion, when the coke is drawn out.

The coal is charged into the furnace from above through the hole in the center of the crown. The furnace is hot and the coal starts to combust slowly. Sufficient air for combustion, when required, is drawn through holes just above the door. The coking usually requires from 56 to 72 hours.



Standard Coke Oven.



Longitudinal or Belgian Ovens.

The illustrations used in this article are by courtesy of The Harbison-Walker Refractories Co.

When completed the mass is cooled with water and drawn out as rapidly as possible.

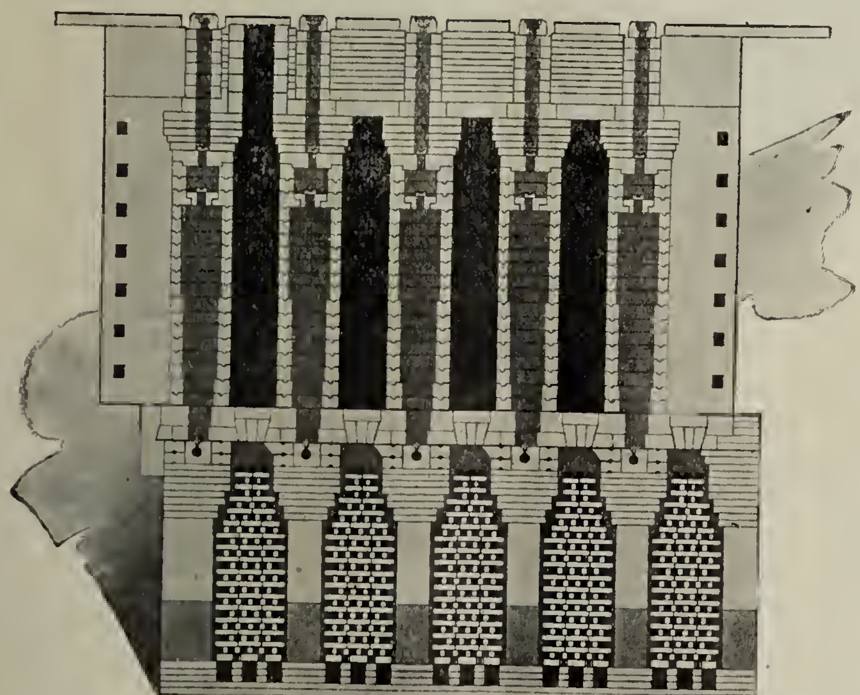
Sometimes beehive ovens are arranged so that part of the volatile gases can be drawn off and burned under boilers. This is better than wasting the entire volatile but not as efficient as it should be.

The Belgian Coke Oven—is illustrated in figure 2. This oven is just as wasteful as the beehive but is so constructed that it permits of more efficient operation as far as labor is concerned. The crown is about 7 feet 6 inches above the floor of the center and tapers down until it is 3 feet 9 inches high at the two drawing holes. The same width is maintained from end to end.

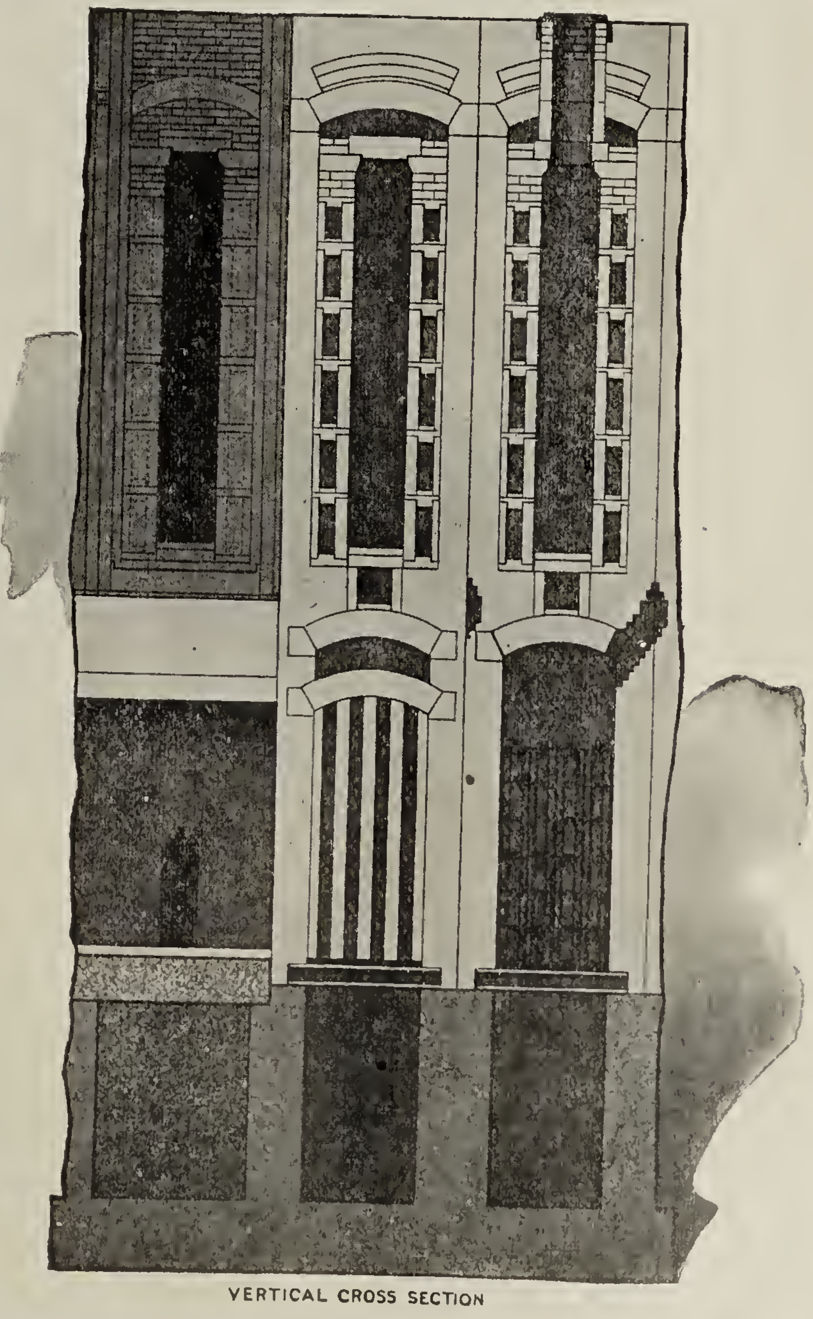
The same kind of bricks are used in the Belgian as in the Beehive ovens. The first two and one-half feet above the floor is made entirely of fire clay bricks. This is the height of the coke when made and the clay brick are used on account of their resistance to scouring when the coke is removed and also as the fire clay bricks do not flux badly with the coke. The remainder of the furnace is made of silica bricks with lime bond.

By-Product Coke Ovens—The by-product ovens differ in construction from the other types. The chief difference, which is common to all by-product ovens is that the coal is degasified in chambers that are separated from the heating chambers. The Beehive and Belgian types are arranged to degasify the coal in the same chambers as those in which the heat is generated and by using part of the volatile gases.

Figures 3, 4 and 5 show types of by-products ovens. The heating chambers of this type of oven run parallel to, and alternately with, the degasifying chambers. They are usually at the sides but sometimes beneath, as well. These chambers are the full width of the ovens, i. e., from 30 to 45 feet long and 16 to 24 inches wide. The height is usually



Koppers Regenerative Coke Oven, Separate Regenerators For Each Oven.

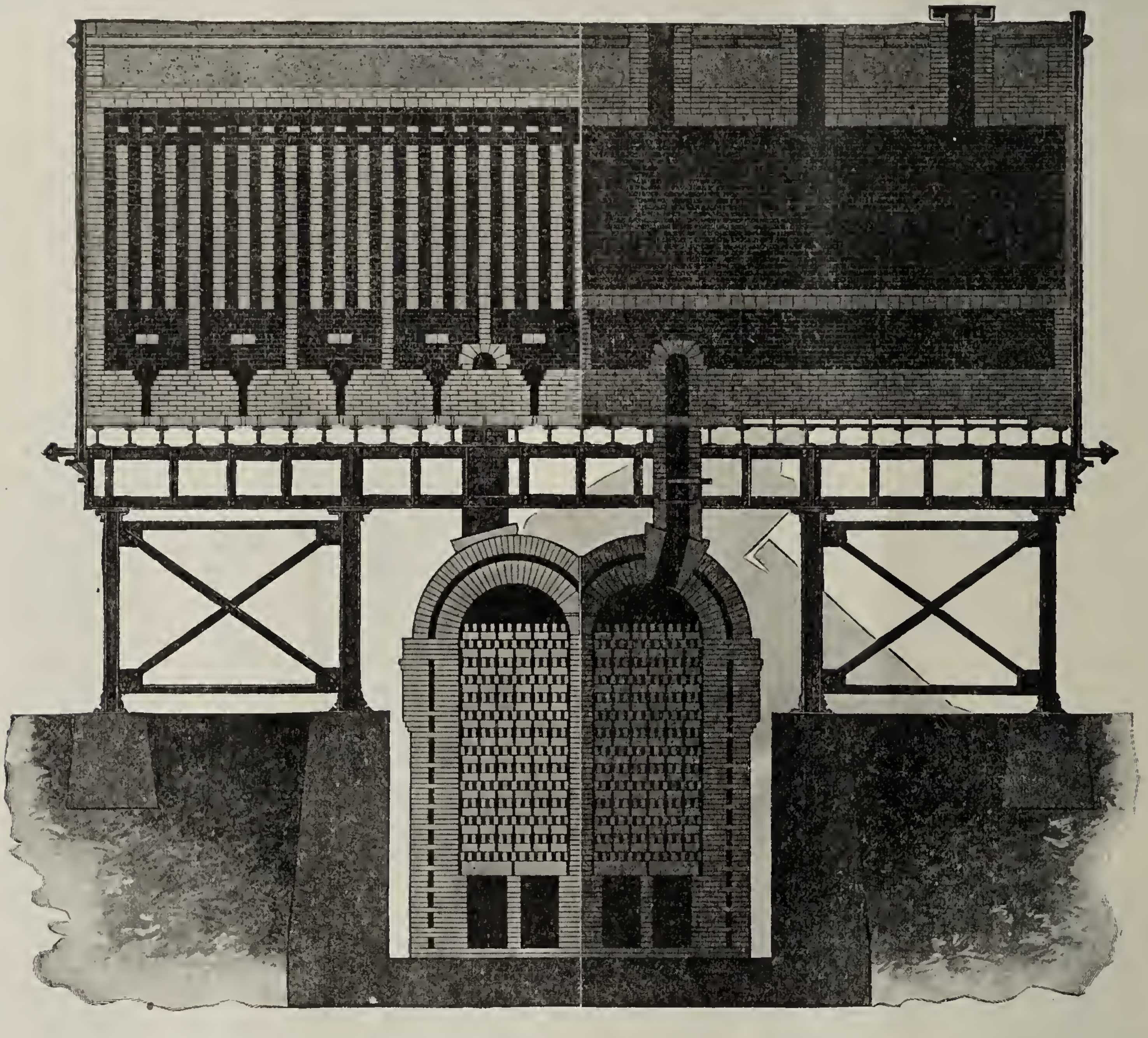


Somet-Solvay Co., Typical Sections of Coke Ovens.

about 5 to 8 feet, depending on the kind of by-product oven. The degasifying or coking chambers are also of about this width.

As the coal cokes part of the gases are drawn off, in flues which form the walls, and burned, the heat thus generated being used to degasify the coal in the coking chambers. The hot gases from this operation are drawn down through degenerators and the efficiency of the operation increased somewhat more.

The gases which are not burned are drawn off and the by-products extracted during their passage through the cleaning and washing house to the regenerative chambers and flues. Among the by-products are ammonia, tar and oils. The new motor fuel "Be-zol" which has proved so efficient is derived from by-products in Koppers ovens. This is being used extensively in the Pittsburgh district and is particularly good in cold weather.



By-Product Coke Oven, Otto System. (Patented)

By-product ovens are not only efficient on account of the recovery of materials in the volatile gases but on account of their construction and enormous tonnages handled. The coking chambers are very narrow. As a result, the coal is quickly coked, quickly removed mechanically and very little heat lost. In coking, the coal recedes toward the middle from the side walls. It makes an excellent coke for smelting purposes.

The manufacture of bricks for coke ovens presents a great many problems that require great care. A great many special shapes are used, particularly in the new installations. The actual erection also requires great care.

BRICK AND BUILDING NEWS FROM EVANSVILLE AND SOUTHERN INDIANA.

WHILE THERE IS nothing like a boom in building lines in Evansville and other southern Indiana cities and towns, trade is steadily improving and now that the Victory Liberty Loan campaign has come to a close it is expected there will be marked improvement in building lines. Edward C. Kerth, city building inspector at Evansville, reports that the building permits for the month of April in that city were far greater than March, and March was a better month than February. Considerable building has been contracted for or is under construction in the city of Evansville. It is expected that as soon as Congress meets in special session and passes the appropriation bills that money will be forthcoming for the new brick roundhouse of the Louisville & Nashville railroad in this city. Plans for the new roundhouse have been completed, but work could not start because of the fact that no appropriation was made for the United States Railroad Administration in the closing days of the last Congress.

The brick manufacturers of southern Indiana report that trade is some better than it was this time last month. The Majestic Theater, a brick structure in Evansville, is to be overhauled and improved, the improvements to cost in the neighborhood of $75,000. Plans for the work have been drawn and the work will start within a short time.

Brick manufacturers say they expect to see trade fairly good all summer and fall and that by the beginning of next year they expect to see the United States on the verge of the biggest building boom witnessed in several years. Many of the brick plants in southern Indiana are running on short time, and in some instances their supply of brick on hand is limited. John Andres, secretary and treasurer of the Standard Brick Manufacturing Co. at Evansville, says things are much more lively than they were a month or two ago, and he is on the opinion that the brick manufacturers of southern Indiana will have a larger volume of trade this year than last. General business conditions in Evansville are improving.

Henry C. Kleymeyer, president of the Standard Brick Manufacturing Co., has been appointed on a committee by the Evansville Chamber of Commerce to select a site for a permanent aviation field in the city of Evansville. A short time ago a government airplane was in Evansville for several days boosting the Victory Loan campaign, and it was then demonstrated that the city was in need of a permanent aviation field.

The city of Evansville went over the top in exactly four days in the Victory Liberty Loan campaign, the quota for the city, $4,612,250, having been passed in that time. Henry C. Kleymeyer, general manager, and John Andres, secretary and treasurer of the Standard Brick Manufacturing Co.; Aaron M. Weil, of the Crown Pottery Co.; Michael D. Helfrich, of the Sanitary Pottery Co., and others, were active and prominent workers in the drive.

The bricklayers of Evansville have been granted a raise of from 75 cents to 85 cents an hour. They asked for a scale of 90 cents an hour and a compromise was effected. It is expected the hod carriers of that city will also ask for an advance. Carpenters in Evansville have been advanced from 60 to 70 cents an hour.

John Williamson, formerly connected with a brick manufacturing plant at McLeansboro, Ill., has returned from overseas and it is expected he will be mustered out of the military service within a short time. He was with the United States Infantry in France for about one year and had some interesting experiences.

At the annual meeting of the Evansville Council, Boy Scouts of America, John Andres, secretary and treasurer of the Standard Brick Manufacturing Co., was elected president of the council to serve one year. Mr. Andres also is president of the Evansville Rotary Club and takes an active interest in all civic affairs of his home city.

The three large pottery plants at Evansville are being operated on steady time and have, in fact, been since the first of the year, and a nice volume of business is coming in. The pottery manufacturers of Evansville express the belief that this will be a better trade year than last or the year before that.

Ferman C. Stevens, a stockholder in the Stevens Building Products Co. at Evansville and a director in the concern, has filed a suit asking for the appointment of a receiver to take over the affairs of the company and to wind up its business. He alleged in his complaint that the company owes $9,500 and that it is unable to pay these claims and that the directors are planning to show a preference in paying some debts. The company was organized eighteen months ago, the complaint alleges, but at the present time the plant is not being operated and that there is a difference of opinion among the directors which prevents the business from being conducted. Stevens is the inventor of a machine that makes brick from cinders and the Evansville plant was first started in operation a few months ago, and it was announced by the company when it located in Evansville that similar plants would be built in other cities of the west.

The Terre Haute Vitrified Brick Co., of Terre Haute, Ind., has increased its capital stock from $200,000 to $450,000, and it is expected that several improvements will be made this year around the plant.

D. W. Cobb, foreman in the O. H. Parker tile factory at Sebree, Ky., badly sprained his ankle while at work in the factory a few days ago and will be barred from work for some time to come.

Trade with the Huntingburg Pressed Brick Co. at Huntingburg, Ind., has been good for the past two months and the company has been receiving a good many orders from various parts of the country.

George Lant, Sr., filed a suit a few days ago against George W. Lant, Jr., his nephew, asking for an accounting on terms totaling $5,500 on the books of the Evansville Pressed Brick Co., a concern which formerly was operated on the Stringtown road near the city of Evansville and it is expected the case will be tried soon.

Frank Reed, brick manufacturer at Mt. Carmel, Ill., was a business visitor at Evansville a few days ago and reported trade in southern Illinois very good with indications of considerable building in that section during the present year. Mr. Reed is the son of the late Thomas Reed, who for many years owned and operated a brick yard at Petersburg, Ind., a few miles north of Evansville. A HOOSIER.

NEW YORK AND VICINITY.

PRICES for brick in New York city remain at $15.00 for Hudson river common, with proportionate prices for others. But demand is small and for the present, nothing indicates any considerable improvement. Holders are not urging sales. They realize that it would do no good. Buyers are not interested, beyond satisfying requirements for a few small jobs which are under way. Until the building situation changes in New York the market need not be, is not likely to change. Conditions are still unfavorable and few see immediate indication of an improvement.

While some parts of New York are underbuilt a great many livable structures are vacant elsewhere. It is true, too, that the number of people looking for living quarters is exaggerated by a system of duplication which helps swell the figures. For instance, a family looks at one apartment and goes on to the next. It is reported in all the places it visits. As a matter of fact, the same family can occupy only one apartment and unless some better way can be found for reporting than now exists conservative people will question the accuracy of the figures issued weekly by those supposed to know. New York is underbuilt, perhaps, but it is not in so serious a condition, as some other places because a great number of vacant apartments can be found, but they do not suit those who are searching for them and therefore it is impossible to satisfy them in some portions of the city. A suggestion has been made that the vacant apartments be repaired and put in condition for satisfactory living, but that is scorned as impossible and nothing short of liberal building operations will please those who are looking for apartments. A four room apartment in any of the uptown apartment houses costs now $60.00 per month, even those occupied by low paid clerical help and working men running as high as $45.00 and $50.00. It is not difficult to see where this orgy of high prices will end. Conservative operators are looking for a change in the situation and expect to see prices come down materially in the near future.

BURTON.

If there ever was a time for the free exchange of price information now is the time, for every man in the trade is naturally wondering what the other fellow is doing or is thinking about doing.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XXXVII.

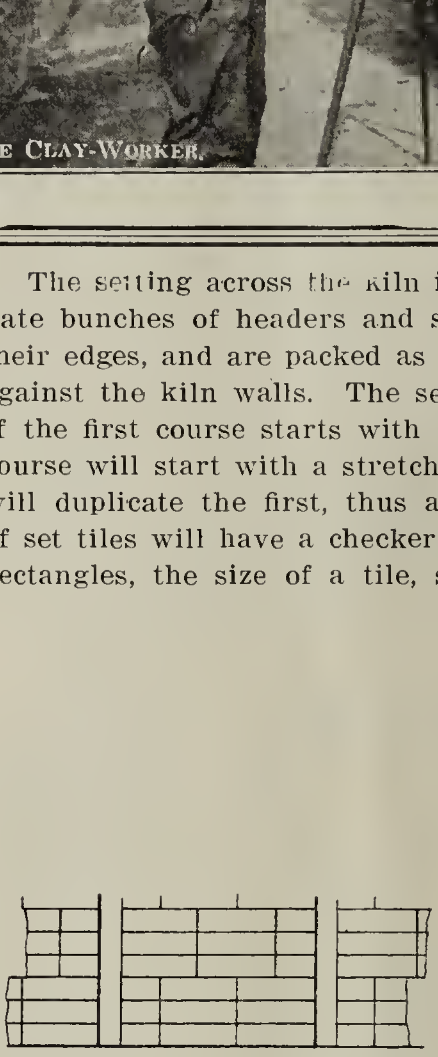
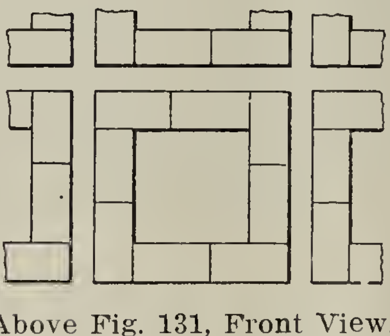
Setting For Flame Effect (Continued)

A METHOD of setting in bungs for salt glazing is shown in Fig. 131, front view and Fig. 132 plan. The bungs are tied together by headers spanning the intervening space. Such setting greatly reduces the capacity of the kiln, but for salt glazing the results are very satisfactory.

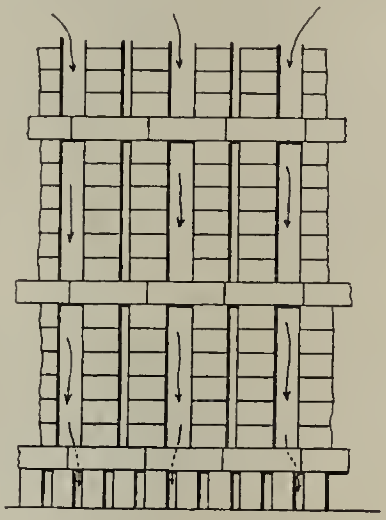
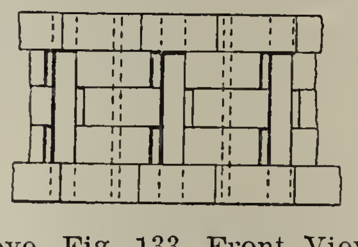
We frequently have to burn bricks set flat, such as ornamental shapes, enameled bricks, etc., the faces of which must be protected from the flames, and the usual "boxing in" method for such work is illustrated. in Fig. 133, front view and Fig. 134 view plan. Each bench is started with a course of bricks on edge, and on this is set a flat face and tie course of standard bricks as shown in the plan to carry and protect the special shapes. Each tie course is the same as that shown in the plan. The special shapes, or enameled bricks, are set with their faces toward each other, and only the backs are exposed in larger draft spaces between each double tier. The benches are set in close touch with each other, and may be tied together to maintain close contact and thus prevent the gases from passing down between the benches and baffling back into the narrow spaces between the faces of the bricks. The top tier of bricks is covered with the usual tie and protecting course and this may be doubled on top and carried across from bench to bench. One can readily see that as the bricks shrink there is some danger of the gases getting in between the ends of the special bricks but it is unusual for them to penetrate as far as the faces, and for stretcher face bricks the protection is ample. Quoins, however, are frequently damaged on the heads, and to protect them the bricks are set in triplets instead of doubles. The quoins are placed in the middle tier and the stretchers in the outer tiers on each side.

Roofiing tiles of the porous type are set in open kilns without supports or stands. Such tiles are made of clays which shrink very little and which are not liable to warpage, distortion, and kiln marking. The floor of the kiln is covered with two or more courses of bricks on edge to provide draft space and circulation under the mass of tiles. The tiles so set are of the interlocking type and no matter how closely they may be nested the projecting lugs and locks provide draft space. In setting, a bunch of tiles are nested as closely as possible and the number of tiles in a bunch is such that the thickness of the mass corresponds to the length.

The setting across the kiln in each bench consists of alternate bunches of headers and stretchers, the tiles resting on their edges, and are packed as closely as possible and wedged against the kiln walls. The second course reverses the first. If the first course starts with a bunch of headers the second course will start with a stretcher bunch, and the third course will duplicate the first, thus alternating to the top. A face of set tiles will have a checker board appearance. Squares, or rectangles, the size of a tile, showing ends of the tiles will alternate with squares showing the side of the tile. The alternation is also carried out in the benches. If the first bench starts with a bunch of headers, the next bench will have stretchers.

Above Fig. 131, Front View.
Below Fig. 132, Plan.

Above, Fig. 133, Front View.
Below, Fig. 134, Plan.

Any tendency to roll sideways is limited to a single header bench of ten tiles, more or less, since the stretcher benches prevent the extension of the rolling tendency. Similarly, any forward or backward rolling in the stretcher blocks is checked by header blocks in the adjacent benches. It is essential that each course be tightly wedged against the kiln and bag walls and that the tiles be in touch with each other throughout the mass of the setting. The rolling then is limited to the shrinkage which in porous tile is very slight—frequently none whatever.

In some instances where there is no shrinkage, or the kiln is narrow, it is only necessary to put in an occasional block of stretchers to prevent rolling.

Vitrified tiles, and such tiles as nest perfectly—shingle tiles and Spanish or "S" tiles without lugs or locks, must be set in "stands." The stands are fire clay plates, 2½ inches thick, with the other dimensions corresponding to the width and length of the tiles usually around 12 inches by 16 inches. These plates are set up to form a series of pigeon-holes, or "boxes" as shown in Fig. 135, in which the tiles are placed. The boxes are braced against the kiln walls, or where this is not practical, as in some parts of round kilns, and above the bags, an occasional blind box is set in the stand by simply placing the flat side of the vertical plate parallel with the face and back of the stand, which we also illustrate in Fig. 135. The stands rest on bricks on the kiln floor which insure draft and circulation under the stands and spacing the stands several inches insures draft space from top to bottom of the kiln. The tiles are placed in the boxes on the flat, on end, or on edge, as may be best for any particular shape. Shingle tile for instance may be set flat, or on edge in a solid mass in stands of a suitable height as shown in the bottom tier in the sketch, but any clay worker will appreciate the difficulty of burning to vitrification a solid block of clay without cracking, or checking, bloating, or block coring. Such solid setting is not practical except the entire kiln is so set, and the needed time and care given to the burning. It would be a serious waste of fuel and time to burn a kiln largely filled with open set ware, at the rate required for a few stands packed with tile in a solid mass. Shingle tile may be set open by using strips of clay to separate alternate pairs of face tile. Several methods of setting shingle tile are shown in the sketch.

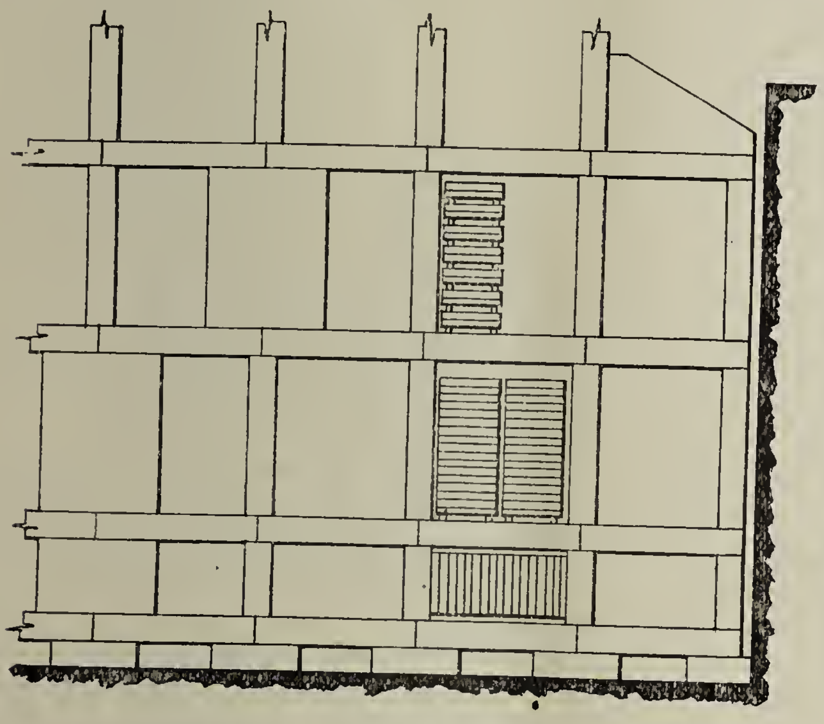


Figure 135.

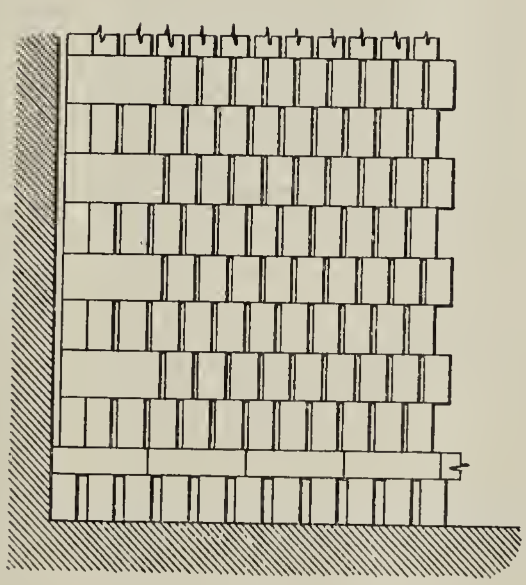


Figure 136.
Silica Brick Setting.

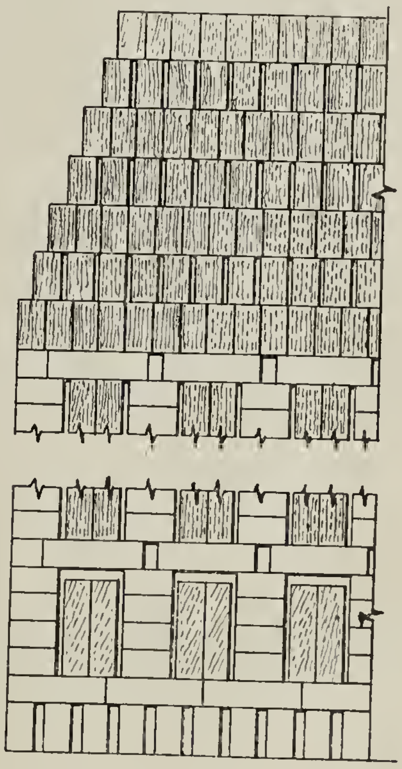


Figure 137.
Silica and Magnesite Brick Setting.

Spanish tiles are set on end in pairs, closely nested, and the pairs are separated by embedding them in strips of clay, and supporting them in a vertical position by similar strips of clay on top. Interlocking tile are also embedded in strips of clay, and are set on edge or on end as they may best fit the stands or suffer the least deformation in burning.

Finials and other roof trimmings, are either set in the boxes, or on top of the stands.

Terra Cotta is also set in stands called floors, but the boxes are much larger and the floors cannot be built up in uniform sized boxes on account of the variation in the sizes of the ware. The floor blocks must have larger dimensions in order to support the weight which larger boxes involve. There is no standard size for the floor plates and posts. The floor plates are commonly three inches thick and two feet square. The posts are thick walled hollow tiles about six inches square and vary in length up to thirty inches. Low floors may use short posts or lacking these one or more posts may be placed on edge and extra high floors may have the posts capped by one on edge. The aim, however, is to have the structure as open as possible to get the full benefit of the radiation walls. Manufacturers differ in regard to the best kiln height for terra cotta. The older and more common kiln is 15 to 18 feet high and there may be five floors. This involves considerable work in building the floors, setting and drawing the ware and taking down the floors. Others advise low kilns, even as low as merely head room for the workmen, and limiting the floors to one, or two at most. Economy in heat is claimed for the high kilns and economy in labor for the low kilns.

Sewer pipes are set with the spigot end down and the large sizes are placed on rings of green ware to take up the shrinkage strain. The setting is in a series of circles on account of the use of the crane for handling large sizes. As has been previously described, the spaces between the bags are filled with small sizes, three lengths high or sometimes four. Then come rings of intermediate sizes, and inside these are the large pipes which usually may not be set next to the bags where they would be within the variable influence of the high temperature gases leaving the bags, resulting in serious loss. The setting height is usually four standard lengths or equivalent in longer lengths. The setting is such that the sockets are in touch, which, because of the circular setting, is a sufficient brace, especially in view of the stability of the columns of large pipe. Smaller sizes are set inside the larger sizes—"stuffing"—but there must be sufficient difference in size to insure a clear annular space between the two otherwise the inside of one and the outside of the other will not have a good glaze.

Elbows, branches, tees, traps, etc., are largely set on top. Tees and branches may be set in the regular columns but elbows, traps, etc., must be set on top. Some of these shapes may be set in the top course without any difficulty, the spigot resting in the socket of the standard pipe below. Elbows if set singly with the spigot end down would be top heavy on account of the socket and would be liable to topple. We have seen them set in this way and the two braced against each other with a clot of clay to keep them apart for draft space. The safest setting for elbows is to use a ring of clay in the socket of the lower pipe, the socket of the elbow resting on the projecting ring, and the elbow may be tipped at an angle to equalize the weight on the supporting column, at the same time insuring a more direct course for the salt fumes. In various simple ways the top of the kiln may be set with specials, often without any bracing, while unstable pieces may be braced, one against another, by clots and strips of clay.

Enameled bricks are occasionally set in stands or in saggers, especially where the enamel has a tendency to run and form a thick edge very noticeable in the wall in certain angles of reflected light. In stands or saggers they may be set with the enamel edges up and the enamel spreads evenly.

Silica bricks were formerly set in the usual checker fashion and this method may still be used in a number of yards. In several yards a bench type of setting shown in Fig. 136 is the modern practice. A course of burned bricks is set on the floor in four brick benches the full width of the kiln, and these bricks are spaced to permit the escape of the kiln gases to the kiln floor outlets. This course of bricks is covered with a flat course of burned bricks laid tight and upon this floor begins the setting of the green ware. The bricks are set headers throughout except at the ends of the benches where stretchers are necessary in order not to rack back except as desired. The setting is carried up to a height of about eighteen courses and covered with a flat tight course of burned bricks. On this upper floor are usually set the shapes, blocks, etc., interspersed with standard bricks. The top is finished with a single, or several courses of standards on edge. The setting is much higher than the usual face and paving brick setting, being around thirty six courses on edge where the latter vary between twenty-four and thirty courses.

The four brick benches are spaced not more than three inches and these spaces are the draft flues from top to bottom of the kiln. It is seen from the setting that there can be no draft down through the mass of ware, but each bench is completely surrounded by the kiln gases, and the ware within the bench is burned chiefly by conduction and radiation, and by convection only to whatever extent the gases are baffled back and forth by the varying gas pressure in the draft spaces.

The setting is perhaps a consequence of the burning which differs materially from the ordinary burning process. The method followed is to use deep furnaces with free egress into the kiln, and to heavily charge the furnaces with fuel each firing period. In consequence the kiln and flue system even to the top of the stack is filled with unburned gas. The purpose is to burn the gas in contact with the ware from top to bottom of the kiln thus getting flame temperature. At least during some stage between the firing periods, there is perfect combustion conditions and maximum temperatures and the setting is practically such as to quickly develop the temperature in the bottom of the kiln.

Magnesite bricks are set with silica bricks. Where both products are made in the same factory we have seen the magnesite bricks set with silica bricks header and stretcher in the usual checker fashion, except that the header courses were alternate silica and magnesite and the stretchers were all silica. The setting was such that the stretchers broke joints on the silica headers. The silica bricks being slightly larger than the magnesite and expanding in the heating up, the magnesite bricks carried no weight. In other words, the silica bricks were set to form a series of pigeon holes or boxes in alternate courses, and in these boxes were placed the magnesite bricks—one in each space spanned by the silica stretchers.

Some factories make only magnesite bricks, and these are set in burned silica brick stands. One method of such setting is shown in Fig. 137. The boxes are built up of silica bricks and covered tightly with flat courses of silica bricks, in four brick benches. Each box is filled with magnesite bricks placed on end. In the upper part of the kiln there are set all magnesite bricks to whatever height they will stand, usually six to eight courses, in alternate finger spaced and tight courses.

By such setting the kiln content is about 40 per cent magnesite.

The burning is the same as that of silica bricks and the temperatures required are around cone 20—2780 degrees.

Pottery, porcelain, abrasives, etc., are burned in saggers and the problems involved are those of filling the saggers, supporting the ware, etc., and are beyond the province of these articles. The filled saggers are set in the kilns in "bungs," and the chief difficulty is to place the "bungs" in the proper position in the kiln to get the desired temperature for the ware enclosed.

The setting in a ring kiln and in a direct coal-fired chambered kiln require some knowledge of the operation of such kilns, particularly the ring kiln.

The draft in a ring kiln is largely horizontal and unless the fires advance properly there is danger of losing them, and greatly delaying the burning of the ware, or of getting unsatisfactory results. The heat should be kept in advance in the bottom of the kiln, which is difficult to do if the top of the kiln is set very open or if there is too much free area over the top of the ware. The tendency in such instances is that the gases from the trace flues will rise vertically from the coal and then turn forward in the upper part of the kiln, completing the combustion there and thus finishing the ware in the upper part of the kiln before the bottom ware is finished. We then get the top burned first, and have a maximum temperature on top in advance of the fire below.

If the setting is relatively close on top, the air and gases are forced to follow the trace flues, thus keeping the heat in advance on the floor of the kiln, and the upper ware may be finished by radiation, conduction and convection, and keep in pace with the bottom ware.

A ring kiln constructed with drop arches at intervals of about twelve feet has a decided advantage, in that the arch acts as a damper to retard the flow of the gases in the open space between the ware and the crown of the kiln, and forces them down among the ware. Sometimes a dead wall of green ware is set in conjunction with the drop arch, thus actually dividing the tunnel into separate compartments, connected, one with the other by the trace flues. This gives a fresh start in every section, and it is impossible for the top to get much in advance of the fires in the trace flues. To the contrary it may be necessary to set the ware to collect a portion of the fuel at different levels in order to get a uniform burn. The bricks forming the vertical firing flues are staggered in such a way as to collect the fuel on the edge of the projecting bricks, and as it spills it is caught by lower courses of bricks step by step to the lower part of the kiln, thus spreading it out in a fan or inverted "V" shape, practically covering the width of the kiln. Sometimes loose bricks are set in the vertical flues, which at any stage in the firing may be turned flat to provide a shelf for the collection of fuel at any level or series of levels.

Otto Bock and Ernst Schnatolla, and other German engineers, describe and illustrate methods of setting and kiln construction which give, in a ring kiln, firing compartment separate from the ware and in some instances convert the kiln into separate compartments. American clayworkers are not much interested in these changes. Some of the changes involve a lot of dead work which would be prohibitive in American factories, while others are adapted to small kilns only, which are much more common in Europe than in America.

American practice requires large kilns and a maximum capacity of some kind of ware, and we cannot afford to muss up our kilns with a lot of equipment or a variety of wares not essential in other types of kilns. Instead we scrap the kiln and build the better type.

(To be continued.)

Written for The Clay-Worker.

WITH THE POTTERY TRADES IN ENGLAND.

AN EXHIBITION of contemporary pottery organized by the Art Section of English Ceramic Society, was recently held at Stoke, England. The venture has proved a distinct success, and, though it has aroused vigorous controversy that is all to be the good as awakening real and practical interest in the movement for improved design. Criticism was to be expected, for the exhibition was a distinct innovation. For the first time one of the British craft industries submitted examples of current manufacturers to the judgment and selection of prominent artist-designers, who set a high standard and rejected all wares which, in their opinion, transgressed the laws of design or good taste, and the result of their selection was a display of wares which in shape and decoration presented a gratifying degree of refinement. The exhibition was not large or all representative of the industry, but it formed a basis from which should develop a more comprehensive display and a better artistic standard.

The bulk of the exhibits were of dinner and tea ware and reminiscent styles predominated over the modern, though the latter in their simplicity and restraint of form and decoration suggested the beginning of what it is hoped will eventually be achieved—a school of characteristically English design. The adjudicators made some useful suggestions for extending the scope of the exhibition and for providing greater variety in decorative motives. Particularly noticeable was the smallness of the display of purely decorative pottery, in regard to which the examiners state they set a higher standard than for articles of utility. During the last decade great progress has been made in the development of colour, glaze, and lustre effects, and the adjudicators' decision in regard to some of the examples which come within this category was possibly open to question.

An interesting feature of the exhibition was a collection of examples of the new hard porcelain which has been evolved as a result of the research work conducted by Dr. J. W. Mellor and Dr. Bernard Moore at the Stoke experimental factory. The new china, which is intended to compete with the German and other Continental hard or felspathic porcelains, is an all-British product, and is superior in several respects to the Continental varieties. Its appearance and texture approximate more nearly to the old Chinese than the German porcelain; it is particularly adapted to the use of under-glaze colours, some of the blue-printed ware being particularly charming; and it is capable of taking a wider range of enamel or on glaze colours in contradistinction to the Continental hard porcelain, from which enamel colours are apt to chip off.

These exhibits were chiefly shown to display the variety of colours and decorative processes applicable to the new china. Most of the pieces had been decorated at local factories; a few of them had been made throughout at local potteries from recipes, supplied by the experimental factory, and all, with one exception, had been fired at temperatures such as are developed under existing manufacturing conditions.

The new hard porcelain, though not rivalling in texture and delicacy the incomparable Staffordshire bone china, is more highly vitrified, wears better, and remains clean, even if chipped. It can be made much more cheaply than bone china, and in some classes of goods can be made practically as cheaply as earthenware. The difficulty is in the firing of flats—plates, dishes, etc., and much more research is necessary before flat ware can be made at anything like the price of earthenware. The new porcelain has not reached the commercial stage as yet, but some 50 manufacturers have obtained the recipes and are experimenting under existing conditions before launching out in the war of special factories and ovens.

The newly formed British Pottery Manufacturers' Federation held its inaugural meeting during February, and at the outset of its career anticipated a possible application by the operatives for shorter working hours by instituting a 47-hour week.

Pottery manufacturers are well represented at the British Industries Fair in London, their display of ware being the largest since the war. There is no shortage of orders in any of the departments of the industry, but an increasing number of manufacturers regard the fair as so important a factor in the future development of business and particularly of export trade, that they have taken this first opportunity since the cessation of hostilities of making as good a show of their products as possible.

Many new designs are included, and buyers will discover that, even under the difficult circumstances still prevailing, pottery firms are displaying an eminently progressive spirit. A portion of the exhibition recently organized by the Art section of the Ceramic Society, has been transferred to the Fair; but only a portion of the Board of Trade insisted that only the ware of firms exhibiting at the fair should be included.

M. MEREDITH.

DRAINAGE INSURES CERTAINTY OF CROPS.

The cultivator of level, undrained lands is continually harassed in mind about the uncertainty of his business. He must wait until the season is well advanced to plow his land. Then if he plants he is uncertain whether the weather will be favorable. It may "turn out wet," and the constant evaporation, keeping the land cold, causes the seed to rot. If the season be favorable for the germination of the seed, and the young and tender plants appear, then it may "turn out showery," and the land become so wet as to place it out of his power to cultivate it, and the crop turn out badly; or, if the season be dry in the after part, the land, which is naturally wet, will dry out and become hard, and the crop damaged. Hence it is that such a farmer must plod along and scratch, wet or dry, and depend on uncertainties, accept his fate, and blame Providence.

But the farmer who cultivates land which is thoroughly underdrained can break it earlier in the spring, the soil is loose and friable, and he can plant earlier with a positive certainty that the seed, if good, will germinate; he can cultivate sooner, with a third less labor to both man and beast, can be stirring the soil in twenty-four hours after a heavy rainfall. The soil is warmer and promotes the more rapid growth of the crop and is less liable to damage from late frosts in spring, or early frosts in autumn, practically lengthening the season for growth and maturity fully thirty days, or if the weather should be dry the roots, descending deep into the earth, bring up the moisture from below, producing an abundant yield. Whether the season be wet or dry, the farmer on drained land has a certainty of an abundant yield which enables him to mature his plans without liability to failures. The experience of seasons of extreme drouth in some localities has fully demonstrated the fact that drainage protects against damage from this cause also.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

A HURRIED trip through portions of New England late last month disclosed a number of interesting facts. First, it was noted that all brick making plants seen, including large plants in Connecticut, Massachusetts and a few in New Hampshire, were making preparations to open their season. A few had already got to going in a small way, but the bulk of them had just set their pumps to working in the pits, or were stripping, or clearing their yards.

A noticeable feature was the huge piles of wood stacked about the burning sheds. Few of the western New England plants use coal. So far as seen none have failed to lay in a heavy stock of wood. Coal is around $12.00 a ton at some New England points and this is expensive fuel for brick burning. Wood is cheaper and only when it is impossible to obtain freight cars is there any restriction upon the quantity obtainable. While it may not be quite as effective in some ways as coal the reduced expense more than compensates, it is said. Many thousands of cords are stacked about the brick plants ready for use this summer.

An interesting feature was the development of the brick idea in Bridgeport, Conn. Of course Bridgeport today is seeking to readjust itself after the severe jolt it received when the munitions plants closed and many thousands of employes, attracted by the liberal war pay, were suddenly thrown out. But it is easy to see that the brick idea has been productive of much permanent building. New houses are of brick. Many of the shops and factories are of brick. In one entire section, all the houses are of brick, in modern style and possessing many elements of architectural beauty. They are mostly two stories high, with rooms for from two to ten families. They are substantial and comfortable. While they were undoubtedly erected originally for the use of munitions workers, they will be utilized in the future by employes in the regular manufacturing establishments of the city which are fast coming back to their own. Before very long Bridgeport will be upon a normal basis with larger industrial activity than ever before. The feature of its building activities is that it has learned the use of brick. That will be worth much in the future to the brick manufacturers of that portion of Connecticut.

Wheeler & Howe, of Bridgeport, Conn., are beginning to get inquiries for brick for this season. They have considerable stacked under cover to begin the new season with. They are asking from $17.00 a ton and upward, depending upon what is wanted and how large the quantity.

I. L. Stiles Brick Company and the North Haven Brick Company, North Haven, Conn., have begun operations. Stripping is in progress at both plans and pug mills have been started at both places. The sheds have no brick left to begin the season. The new stock will be the first that contractors and builders will be able to obtain.

The Stiles & Reynolds Brick Company, of Berlin, Conn., manufacturers of pallet and hollow brick, are operating. They have a Bucyrus steam shovel which they use in mining their clay. They apparently intend to enlarge their operations this year since they are stripping more clay and getting ready for larger activities.

The Charter Oak Brick Company, at Hartford, Conn., is busy getting its yard ready and has begun operations in the clay pits. A few brick are left in its sheds from last season, but the quantity is small and hardly enough to make any material difference when buying begins. Considerable building is planned for Hartford this year, but as yet very little has been begun.

The Hampden Brick Company, at Holyoke, Mass., is getting its large plant ready for about full operation this summer. Last season it restricted its work to what was actually required, but this year, with its help back and with demand for its product increasing, it intends to do a bigger and better business. Not much has been done in building in this vicinity in a year or two and the locality is much underbuilt. It will, therefore, be a profitable year for the concern.

Dyer Brothers, of Greenfield, Mass., did not open their yards at all last season, but this year intend to operate to capacity. Labor is more plentiful and general business is better. They are in position to turn out a liberal quantity of the best brick and are looking forward to better trade this year than ordinarily.

Greenfield is much underbuilt. That is apparent to even a casual visitor. It has gone up from less than 11,000 to about 17,000 in four years. It would be possible to profitably rent more than one hundred houses or apartments now. Many families are waiting for places to live and more are coming in each day. Greenfield is a user of brick. Its main street is paved with brick and some of its other streets. Its shops have been largely built of brick and many of its recently erected dwellings have been made of brick. Numerous fire proof buildings made of hollow tile are among the latest additions to its residence and building structures. In fact, it is a community where the value of brick as building material has been recognized and appreciated for years. Most growing New England communities seem partial to brick.

All through New England is a note of prosperity which seems different from a few years ago. New buildings are going up everywhere and many more provided for and erection is to begin as soon as conditions permit. The agricultural community is prosperous. Many tractors are in use upon the farms in western Massachusetts. All along prosperity is the striking characteristic of the appearance of the people and the country. While the closing of the special war work gave the locality a shock for a time it is fast recovering and shortly will be as active as ever. New structural operations are developing rapidly and the outlook indicates further improvements this year. The people do not need to be educated to use of brick. They know how already and in knowing how they are adding to the permanency of their structures and to the general prosperity of some of their large clay working plants.

HIRAM.

PLANTS STARTING UP ALONG HACKENSACK.

Some of the yards along the Hackensack have their first arches burning. They have begun in a small way laying up only one or two at the start, but are at work on more and shortly the sheds will all be turning out new brick. Several of the makers say they have made sales sufficient to keep their reduced forces busy for some weeks to come. They have their first burnings ready early this year. Usually they do not begin until well into May, but this year they began the first days of the month.

The mortar joint is essential to bricklaying, but there is a somewhat common practice of using too much mortar and not enough brick. The use of more brick and thinner mortar joints makes a better wall and generally presents a better appearance.

GRATIFYING OUTLOOK FOR HIGHWAY IMPROVEMENTS.

An Increased Demand for Paving Brick Anticipated to Meet The Requirements for Roadway Work Now Contemplated

THESE ARE BUSY days at the headquarters of the Indiana Paving Brick Manufacturers' Association, and still busier for the president of the National Paving Brick Manufacturers' Association, Walker W. Winslow, who occupies a suite of offices in the Fidelity Trust Building, Indianapolis, jointly with Mr. Schoonover, manager of the Indiana Association. Since the election of Mr. Winslow as chief executive of the N. P. B. M. A., early in the year, he has been devoting his entire time to the work of reorganizatoin for which he has peculiar aptitude. He reports that the regional or territorial scheme of co-operation in the paving brick industry is proving very effective, and that the outlook for more and better highway improvement throughout the central west is most gratifying.

Walker W. Winslow is one of the young men in the industry, but is an old hand at the game, having been born a brickmaker, so to speak, his father being one of the pioneer paving brick manufacturers. Walker has walked in his father's footsteps, as it were, having succeeded to the management of the brick plant many years ago. He is a close student of constructive organization, and under his direction the N. P. B. M. A. will flourish as a boosting organization. He is a man of affairs in Hoosierdom, being president of the Twin Hills Coal Company, Brazil, Ind., and also of the Bralil (Ind.) Industrial Supply Co., and of the Indiana Paving Brick & Block Company.

W. W. Winslow, President National Paving Brick Manufacturers' Association, Indianapolis.

NEW MISSOURI PLANT TO MAKE BUILDING AND PAVING BRICK.

At Harrisonville, Mo., the Nicholson Construction Co., of Kansas City, Mo., is building one of the most modern brickmaking plants in the state. This plant is located about 42 miles south of Kansas City and is so situated that they can supply brick to most any market within a reasonable radius of Harrisonville, as Harrisonville is a good railroad center, having four railroads running into it.

The location at Harrisonville is well supplied with a high class shale. At the plant site, they have an abundance of shale which is free from any stone whatever and analysis shows that this shale is adapted for a high class building brick, hollow ware, or paving brick.

The clay will be mined with a large steam shovel and placed in two-yard steel dump cars, which will be drawn up an incline and dumped into the storage bins which supply the three 9-foot dry pans. After passing through the dry pans, the material will pass over and through the necessary elevators and screens into a supply bin which supplies material to the 16-foot pug mill. From there is passes through their No. 290 auger machine, which has a capacity of 100,000 brick a day. The brick pass through the automatic cutter and travel on an off-bearing belt where they are taken off and hacked on steel dryer cars. The plant is also equipped with three represses for making paving brick.

A twenty tunnel waste heat dryer will be used for drying the brick. This dryer is built of brick, concrete and steel and is fireproof throughout. The brick will be burned in two large continuous kilns which will take care of the capacity of the plant.

In addition to the stiff mud wire cut plant, there will be a four-mold dry press unit for the purpose of making special shapes and face brick. The brick made under this process will be burned in 30-foot round down draft kilns. The dry press unit is now in operation and is all electrically driven. The large stiff mud plant will be driven by a large 300-h.p. Bates Corliss engine and three 72 x 18 boilers will supply the steam for their engine. The entire machinery equipment is being supplied by the American Clay Machinery Co., of Bucyrus, Ohio.

The plant will be owned by the Nicholson's interests, and they own and operate two other plants. Mr. George E. Nicholson, of Kansas City, is president and practically controls the three different plants which are in operation. When the plant is completed, it will possibly be known as the Harrisonville Brick Co.

This plant is being built under the direct supervision of William H. Merkel, who is well known throughout the United States by many brick manufacturers, as he has the distinction of building some of the best plants in the country.

NEW SHALE BRICK PLANT IN KANSAS.

The Metropolis Paving Brick Company of Pittsburg, Kan., has recently been incorporated with $200,000 capital stock. M. M. Bushong, a well known clayworker of the Middle West, is president and general manager of the company, which, he writes, owns eighty acres of shale and coal land at Pittsburg that is entirely covered with shale thirty feet deep. Immediately under the shale is a strata of coal which will average about 3,000 tons to the acre.

It is the company's intention to build a paving brick plant with about 15,000,000 per year capacity, the building to be all brick and steel construction, a 20-tunnel Waste heat dryer, eight rectangular down-draft kilns, and to be electric (motor) driven throughout.

Heavy duty equipment will be used in all the machinery, including three heavy duty nine-foot dry pans and an eighty or ninety ton railroad type steam shovel in the shale pit. The company has just opened its offices at 416½ North Broadway, Pittsfurg, Kansas, and expects to be ready to begin construction work within the next two weeks. Beside Mr. Bushong the other officers of the company are Roy T. Collins, vice-president; E. D. Tyner, secretary, of Kansas City, and George M. Smith, of Augusta, Kansas, treasurer.

STATE BUYS BRICK PLANT.

Purchases Junction City Property it Has Rented for Four Years.

The Ohio State Board of Administration has purchased the brick plant at Junction City, which it has been operating for the past five years, from E. A. Young, receiver for the Junction City Clay Products Co. The price paid was $59,752.50, of which amount $20,000 was paid in cash, the balance being payable before the first of next January. The property consists of thirty-five acres and a well equipped brick plant. During the past four years the state has been paying an annual rental on the property of $4,000. Immediate possession is given under the deal.

WHAT FRANCE HAS TO REBUILD

THROUGH the courtesy of the Secretary of Commerce at Washington we have been enabled to examine a translation forwarded by our Commercial Attache at Paris, of three reports prepared for the French Minister of the Interior concerning the extent and nature of the damage done to buildings in France as a result of military operation. The reports were made up in 1916 and contain data for only 753 communes in the devastated region. When the report was written there were 2,554 communes still occupied by the enemy. And since that time much other destruction has been wrought, so the figures, while evidently authentic for the territory covered at the time, evidently do not account for a fourth of the damage done and the rebuilding that will be necessary. With this understanding of the relative amount of territory covered, however, one can get a comprehensive idea of the reconstruction job ahead of France.

The communes for which data has been tabulated are distributed among several departments or districts, as follows: Nord, 23; Pas-de-Calias, 71; Somme, 34; Oise, 59; Seine-et-Marne, 35; Aisne, 51; Marne, 258; Aube, 2; Meuse, 59; Meurthe-et-Moselle, 109; Vosges, 53.

Most of these communes are mainly agricultural in character. Among them there are 299 or 40 per cent. in which the number of buildings destroyed exceeds half the total of buildings existing originally. In some localities the destruction exceeded 80 per cent., while in others it was less. The report shows that there were in the district covered 16,669 houses completely destroyed and 29,594 partially destroyed, which makes a total of 46,263 houses. There is listed 331 churches, 379 school buildings, 221 city halls and 366 other public buildings as destroyed. Also there shows in the destruction list 330 work shops and industrial establishments.

The industrial establishments destroyed include blast furnaces, and various metal working industries, sawmills, furniture factories, brick and tile works, glass plants, textile mills of various kinds, tanneries, paper mills and printing establishments, electrical works, ship yards, sugar mills and refineries, and quite a list of other industries, which furnished a livelihood for nearly 60,000 people.

The total of all kinds of masonry destroyed, according to an estimate in the second of three reports examined, is 3,585,180 cubic meters, for the reconstruction of which it is figured that there will be required 543,289,000 brick, and though it is hoped some of the former material in this form may be salvaged, the destruction seems so complete in many instances that it were better to use new material altogether. In roofing material the destruction that will have to be replaced is given as 91,106,000 tiles and 32,715,000 slates for roofing.

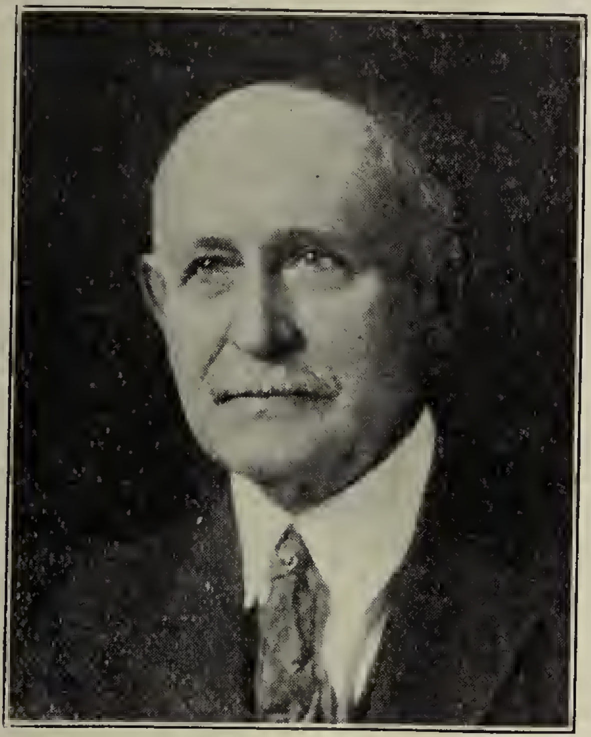
The figures as given in two reports furnish, as indicated above, an idea of the devastation and the reconstruction necessary in a limited area in France. Perhaps we will need to multiply these by five to get an approximate idea of the total damage done in northern France, and then when we turn to the matter of getting the materials for reconstruction we find that the devastation has included any number of brick yards, some small and simple as to equipment, and some more extensive in character, all of which will have to be replaced as a preliminary to the general reconstruction. And it is here that America may be able to render much help by arranging to furnish labor saving machinery and equipment, for one of the big problems in this work is to get the help—to get enough labor.

In the Nord district, for example, the third report states there are fifty-odd important brick manufacturers with continuous ovens producing normally 200,000,000 brick, but we are not told just how badly they have been damaged or how much work it will take to put them in shape again. Then there are many small or community brick and tile plants spoken of, making brick by what is called the Flemish process.

The report suggests that much importance early in the reconstruction will attach to these small yards and that steps have already been taken to get a number of them into action. In the final analysis, however, it will likely be found that mechanical power and equipment is the big factor that will help solve the problem of producing brick and tile for the great rebuilding. There seems to be plenty of raw material pretty well distributed over the whole devastated territory, and there should be fuel when the coal mines are once restored, though at the present writing fuel is one of the important items that is short. What seems to be needed right now to get the reconstruction work started off right is machinery and fuel. It is at the machinery and equipment end that American producers should shine, should find an opportunity to render great assistance to France in preparation for the rebuilding, and to do a good stroke of business for themselves at the same time.

ALBERT POTTS JOINS THE TAPLIN-RICE-CLERKIN ORGANIZATION

THE PIONEER manufacturers of sewer pipe and drain tile machinery Taplin-Rice-Clerkin Company, Akron, Ohio, report a gratifying improvement in that field of endeavor. Many tile plants are overhauling their equipment and installing new machinery and to aid in this good work, the Taplin-Rice-Clerkin Company has secured the services of Albert Potts, of Indianapolis, for many years actively engaged in the brick and tile machinery trade. Mr. Potts needs no introduction to the leading men in the industry, though for the past few years he has been engaged in the automobile business and other lines. He is very glad now to get back to his first love, the brick and tile trade, with which he is thoroughly familiar, and being an adept in the installation and operation of clay-working machinery the trade will profit by his return.



Albert Potts, Indianapolis.

THE FIVE-DAY WEEK.

Those who have taken lightly the erstwhile talk of the coal miners while in convention about a six-hour day and a five-day week have something of a shock coming to them in the current news at least so far as the five-day week is concerned. The news is that the Building Trades Council of Seattle, Wash., said to represent 6,000 workers, has established a five-day week for the organized workers of the building trades there.

BRICK MAKING IN PERSIA.

FROM TEHERAN, PERSIA, that country of history, mystery and grief, comes an interesting story how brick are made. The story is from Consul Ralph H. Bader, at Teheran, and is under the subject head of "Market for Brick Making Machinery in Persia." One is first inclined toward the impression that there is not much chance for marketing brick machinery in that country, and then as the story is read and pondered over there arises the question of future possibilities—what it might mean to that country to have modern machinery introduced to play a part in its reclamation. The story as told in the consular report is as follows:

"The most costly mansions of Persia are built of sun-dried bricks, and the flat roofs are generally of mud. In a hot, dry climate like this, these bricks are durable, as is shown by the fact that some of the towers of Rhei are still standing after 12 centuries. Where great strength is required, the angles are fortified with burnt bricks. Burnt bricks are also used for foundations, chimneys, and Persian baths.

"The burnt bricks used here are all produced locally, and so far as is known none have ever been imported. The kilns, 28 in number, are all located near the southeastern entrance to the city, where there is a supply of light-red clay. It is etstimated that the total annual output in a normal year is about 30,000,000. The bricks are all hand made, and are about 8 inches square and 2 inches thick. After being molded, the bricks are placed in the sun to dry, after which they are stacked in the kiln, where the burning process lasts three days. They are then removed and sorted into three grades, which sell per 1,000 at 100 krans, 60 krans, and 30 krans, respectively (the kran normally exchanges at $0.0875; present rate, $0.179). The price in krans has increased by 50 per cent. in the last 4 years. Laborers are paid 4 to 7 krans per day, according to the nature of the work.

"On account of the economic situation, building operations are practically at a standstill, and not a single brick was burned in Teheran during the past year. The several kilns still have a supply of bricks on hand, and owners say that none will be made until the demand justifies.

"It is believed that when the economic condition of the country improves there will be a boom in building operations here. Brick kiln owners say they would be glad to install machinery if it can be done satisfactorily and profitably. They state it would be necessary to bring machinists from abroad as none are found here. Interest could no doubt be stimulated by sending catalogues and illustrations. The favorable position enjoyed by America in Persia would no doubt facilitate sales."

[A list of names of Teheran brickmakers can be obtained from the Bureau of Foreign and Domestic Commerce or at district or cooperative offices by referring to file No. 109304.]

WESTINGHOUSE CANADIAN COMPANY AWARDED LARGE CONTRACT.

The Hydro Electric Power Commission of Ontario has placed an order with the Westinghouse Company for two 45,000 kva. vertical water-wheel generators of 12,000 volts, 3-phase, 25 cycles, for their Queenstown Development. These will be the largest water-wheel generators ever constructed and indicate that the Hydro Commission Development think there is no time like the present for construction work.

CANADIAN CLAYWORKERS TO MEET IN ANNUAL CONVENTION, MONTREAL, MAY 26, 27 AND 28.

A VERY INTERESTING PROGRAM for the seventeenth annual convention of the Canadian National Clay Products Association has been received from Secretary-Treasurer Gordon C. Keith, of Toronto. The meetings will be held May 26, 27 and 28 in the convention hall of the Builders' Exchange rooms at Montreal, Canada, where members and visitors are requested to call on arrival, register and receive credentials for the entertainment features. The latter include a theater party Monday evening, a noon luncheon Tuesday, the annual banquet Tuesday evening and a trip around Montreal harbor, which is one of the finest in the world, Wednesday afternoon.

The program includes a number of papers and addresses on timely topics. The Monday morning session will be given over to registering, reports of officers, committees, etc., and the address of President Thomas Kennedy.

Convention Papers.

The formal papers to be presented during the convention sessions include the following:

(1) "Use of Fire Brick in the Steel and Clay Products Industries," by W. H. Grant, ceramic engineer with Elk Firebrick Co., Hamilton and Buffalo, graduate of Ohio State University. Discussion introduced by A. F. Greaves-Walker, of the American Refractories Co., Baltimore, Md.

(2) "Pave with Brick," by Will P. Blair, vice-president National Paving Brick Association, Cleveland.

(3) "Waste Heat from Tunnel Kiln," by Conrad Dressler, of the American Dressler Tunnel Kilns, Inc., New York.

(4) "Brick Tests and Investigations," by W. W. Pearse, city architect, Toronto.

(5) "Why Freight Rates are as they are, and How Made," by Jas. E. Walsh, general manager of the Canadian Manufacturers' Association.

(6) "Transportation of Clay Products," by Millard F. Gibson, manager National Fireproofing Co., Toronto.

(7) "Burning of Carbonaceous Clays," by Joseph Keele, B. Ss., chief engineer, Ceramic Department, Mines Branch, Ottawa.

(8) "Steam Shovel Comparisons," by William Burgess, superintendent to the Don Valley Brick Works, Toronto.

(9) "Motor Trucks in the Clay Products Business," by Chas. Harrison, of Dominion Sewer Pipe Co., and Horace Hepner.

(10) "Machinery and Dryers for Large-size Tile," by L. Haigh, of American Clay Machinery Co.

(11) "Sewer Pipe Investigations," by Arthur George Dalzell, formerly assistant city engineer of Vancouver, and now consulting civil engineer.

(12) "Firing of Clay Products in the Dressler Continuous Muffle Kiln," by Conrad Dressler, of the American Dressler Tunnel Kilns Co., New York.

(13) "The Continuous Downdraft Kiln," by H. Webster, Newport, Ky.

(14) Question box conducted by Millard F. Gibson and A. F. Greaves-Walker.

A large attendance is anticipated and the local committee will do everything possible to make visitors happy.

SAND-LIME BRICK.

The sand-lime brick industry was just about as badly hit by war conditions as they clay brick lines, according to figures just made public by the U. S. Geological Survey. The total production for 1918 was 98,399,000 brick, valued at $883,929. This was a decrease of 48 per cent. in production as compared to the previous year. Also it was the smallest output since 1905. There were 42 concerns marketing sand-lime brick last year, a decrease of five operators as compared with 1917. Michigan was the leading state in production, with Minnesota in second place. The average price for the year was $8.94 for common and $11.35 for face brick.

CERAMIC SOCIETY TO HOLD SUMMER MEETING AT BUFFALO AND CLEVELAND.

The mid-summer meeting of the American Ceramic Society will be held during the week of August 4. The ceramists will assemble at Buffalo, visit a number of interesting plants in that vicinity and after carrying out a program there which will be announced later, will proceed by boat to Cleveland, where inspection tours of a number of ceramic plants will round up the most enjoyable and profitable outing. The selection made by the board of trustees was indeed a splendid one and augurs well for a large attendance.

NEW YORK CERAMISTS HOLD MEETING.

THE regular meeting of the New York State Section of the American Ceramic Society was held at Syracuse, Friday and Saturday May 9 and 10. The Friday morning session was devoted to routine business while a formal program was followed in the afternoon, including an address of welcome by B. E. Salisbury, and the following papers: "Mechanical Phases of Ceramic Engineering, Drying and Firing," by L. E. Barringer; "The Manufacture of Abrasive Wheels," by S. C. Linbarger; "The Porcelain Situation in the United States," by C. F. Binns; "Fuel Regulations in Ceramic Plants," by G. A. Bole; "Some Observations of the Shrinkage of China Bodies," by Mark A. Haley, and "How to Make Enamels Durable," by J. B. Shaw.

The evening was devoted to a dinner and round table discussion, and on Saturday the delegates visited the plant of the Onandaga Pottery and the Paragon Plaster Company.

The meeting was very well attended, there being members present from every section of the state. In addition to the members of the New York State Section the session was attended by brick manufacturers of western New York. It was decided to call a meeting of the New York State Section at Buffalo, at the time of the summer meeting of the American Ceramic Society. The officers elected for the current year are as follows: Chairman, S. C. Linbarger; secretary-treasurer, J. B. Shaw; councilor, L. E. Barringer.

The papers on the program were of very high quality and the discussions were of great interest. All expressed themselves as having profited greatly by their attendance at the meeting.

PLANT IMPROVEMENT.

For the manufacturer to hesitate over plant improvement because it costs more now and he is not so certain of what the future demand will be is just about as bad as for the average builder to put off building. In the matter of plant improvement there are two factors to be kept in mind, and there is also a distinction that should be made. The distinction is in the difference between plant improvement and plant enlargement. It is essential to efficiency and fair profits in competition for trade to keep abreast of the time in plant improvement regardless of whether the output is to be enlarged or not. Then there are times when it is equally important to carry out work of plant enlargement so as to be prepared in advance for increased business. To wait till the larger call comes before equipping to produce more is to block the wheels of progress and lessen the opportunities for business profits. In plant improvement, as in business of all kinds, it is a good thing to keep the initiative working.

WANTED
A HOME ON A FARM.

THE ABOVE is the title of a very clever leaflet published recently by the American Clay Machinery Co. It is of particular interest to drain tile manufacturers, and we are pleased to reproduce it for their benefit. Because unusual, the leaflets will prove an attractive bit of boosting literature, and the American Clay Machinery Company generously offer to supply quantities of the leaflet for that purpose, or to supply the cuts in same for use in publications. If either is desired, address the American Clay Machinery Company, Bucyrus, Ohio.

"WANTED A HOME ON A FARM"—*Will work nights and Sundays, summer and winter. Work hardest when I am full, but am always ready for what there is to do. Will agree never to leave the farm nor interfere in any way with your horse trades. Will not keep the hired girl up late nights nor elope with your best driver on Sundays. Will not swear at the biscuits when the minister calls nor show the watermelon patch to the boys from town. Will not track mud on the kitchen floor nor smoke cigarettes in the hay mow.*

Will prepare your soil for cultivation earlier in the spring and make it warmer by several degrees. Will prevent soil baking and forming in clods. Will make your subsoil one vast laboratory for the production of food for your growing crops.

Will feed your live stock, pay your grocery bills, clothe your family, send your children to school, pay your taxes and burn your mortgage.

Will insure your crops in both wet and dry seasons without extra charge. Will prevent the soluble and most fertile elements of your soil from being carried off to your neighbor's land by surface washing.

Not afraid of rain nor hot, dry weather. Hold world's record for carrying water. Have been especially trained and will guarantee that with my help your crops will increase twenty to fifty per cent. or more in quantity and improve in quality.

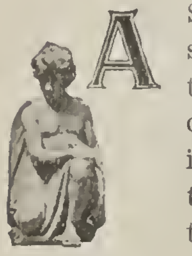
Will contract for one hundred years' service or more. Have thirty years' experience and a clean record.

Am straight as a string and sound as a dollar. Strongest and cleanest of my race, will do as I agree. Reference, your dealer, any progressive farm or land owner, anywhere.

All that I ask is an early and proper burial, you to deduct funeral expenses from increase in first year's crop.

I AM A TILE

FINANCING THE PROSPECTIVE HOME OWNER.



AS THE OWN YOUR OWN HOME movement spreads from city to city, financing the prospective home owner continues to be one of the chief obstacles to the movement. Conventional banking practices in loan making and present restrictions on building and loan associations preclude the possibility that these regular sources of capital will meet the ever-widening circle of the population, in the opinion of experts who are studying the situation for Information and Education Service of the Department of Labor, new machinery must be devised for financing and this new machinery must provide for long-time loans, at low interest rates, made on an amortization plan. Also it is imperative that substantial and artistic dwellings are made available at the very minimum construction costs.

The dispatch shown by private interests in breaking from the profit-making conventions in this field, doubtless, will determine the future attitude of the government. If private initiative does not discover a way to permit the realization of the home-coming aspirations of the people, it seems inevitable that the government in some fashion must step into the field.

The Canadian government already has passed the legislation enabling the Dominion Government to loan to the Ontario Government the money essential to certain housing operations. The Ontario Government, in turn, is prepared to make loans to municipalities and companies incorporated under the Housing Accommodations Act, for acquiring lands and constructing houses for returning soldiers, working men and women, and those of limited means who, without aid on exceptionally advantageous terms, would be unable to own their homes.

In the Canadian scheme the type of house must not exceed $2,500 in construction costs and the maximum cost of each house and real estate is not to exceed $3,000.

The municipality supervises the laying out of land, the plans for the dwelling, form of construction, etc. The loans are for not more than 20 years, and at 5 per cent. Where municipalities acquire land and construct houses they—the cities—may borrow from the government fund the full amount required for this development and building. A housing company, complying with the law, may borrow up to 85 per cent. of the value of land and buildings. A loan may be made to a farmer and to persons who own their land, and erect thereon a house for their own occupancy, to the full value of the buildings. Loans are made by the Province Government to the municipalities on progress estimates as required. The monthly payments for twenty years to cover interest and repayment of principal, on a $3,000 property, will be about $20, but the whole or any part of the principal may be repaid at any time during the twenty-year period. The person buying covenants to repair and to pay the taxes and insurance. A person may sell his interest in a property at any time.

In the United States the meeting of the finance problem remains in the hands of private interests and Own Your Own Home committees in various cities are meeting the problems in various ways. In Spokane, Wash., for the most part, the conventional methods of handling building loans prevail. The financing is worked out by the seller and building contractor. Some lot owners are willing to build to suit the purchaser if the latter pays down 20 to 25 per cent. of the purchase price and the balance in monthly payments over three to five years at 7 per cent. When 50 per cent. of the purchase price has been paid the buyer can obtain loan accommodations on more favorable conditions from the mortgage companies and building and loan associations. In the Spokane campaign especial care is taken not to permit a person to buy beyond his possibilities of payment.

In St. Paul, Minn., an effort is being made to organize a Civic Home Loan Corporation with a capital stock of $250,000. It is proposed to lend to prospective home owners and builders up to 85 per cent. of the investment on the contract basis, at 6 per cent. on deferred payments and with the elimination of discounting second mortgages and commissions.

Salt Lake City is depending on the "mutual" building society and the building and loan associations. In discussing the building society method of financing home builders, Nephi L. Morris, vice-chairman of the employment committee of the Utah State Council of Defense, says:

"The building society of which the writer is president is now in its twelfth year, and sees greater opportunity for enlarging its scope and liberalizing its methods. We have an organized capital of $200,000, of fully paid up stock upon which we guarantee a 6 per cent. quarterly dividend. Such an attractive investment as this is also over subscribed. We are now authorizing the issuance of a 6 per cent. non-participating installment stock which stimulates saving, and we hope to get many men into the habit. The regular installment stock representing the third series receives an annual dividend of about 7 or 8 per cent. and participates in accumulated surplus when the series matures, and realizes about 9 per cent. to the subscriber. This stock is sold only to borrowers; series No. 2 will be retired and series No. 3 subscribed for by the man who, because of his savings, becomes ready to build. This is the best possible plan of financing builders that we know anything of, and several of the local real estate and building companies negotiate their contracts with a provision allowing the company to transfer the obligation to one of these building societies after the second or third year."

The tentative plans for financing construction of houses for ship-workers in Portland, Oregon, suggest a line of action adaptable to almost any community. In submitting to the Department of Labor the plans for proposed Portland Housing Corporation, Paul C. Murphy, prominent in the Own-Your-Own-Home movement, says:

"We find in Portland that there are many persons who own their lot but can not borrow sufficient money to build a home, as most of the loan companies will not lend over 50 per cent. of the value of the property. This plan is intended to provide for the difference between the amount that can be borrowed on a first mortgage and the amount necessary to complete the home. The monthly payments—which one would have to pay out for rent—would first apply to the second mortgage which, in most cases, would be paid off by the time the first mortgage became due, which could be renewed or put upon a monthly installment plan, like the building and loan association."

The proposed Portland Housing Corporation would have a paid up capital of $10,000; it would prepare plans for houses to cost approximately $2,000 designating the materials required and obtaining written assurance from material men to furnish the complete bill of material on order at specified prices.

The Corporation would then invite applications from workers for assistance in building houses. These applications should show (1) bona fide employment for the three months preceding the application, (2) owenrship of lot containing at least 5,000 square feet in a district acceptable to the Corporation, (3) cash in hand amounting to $300 at least, (4) that the applicant is willing to enter into a contract with contractor approved by the corporation for the building of a house on plans likewise approved by the corporation.

If application is approved by the Housing Corporation a contract is made between the applicant and a contractor for construction of a house at an approved price which, for illustration, is assumed to be $2,000. The contract will provide for a payment of $300 in cash, the execution to the contractor by applicant of his note and a first mortgage for $1,000, also the execution in favor of the contractor by applicant of his note and a second mortgage for $700. The first mortgage will draw interest at the rate of 7 per cent., and the second mortgage at the rate of 5 per cent. Interest rates in Portland are somewhat higher than in the East. The first mortgage will be payable in five years and the second mortgage at the rate of $15 per month. Interest will be adjusted on both mortgages according to progress and completion of construction. As further security to the second mortgage-holder the fee of property shall rest in a trust company as trustee until the second mortgage is paid. On the signing of the contract the Housing Corporation will procure a firm offer, from responsible persons to purchase such first mortgage at par when the house is completed, and a similar offer for the purchase of the second mortgage. Consideration should be given to the alternative of placing these mortgages separately with individuals, or placing them with a corporation organized for the purpose.

FOREIGN MARKETS FOR SEWER PIPE.

CONSUL GENERAL H. W. HARRIS, Habana, Cuba, reports about 600 carloads of vitrified sewer pipe are imported into Cuba annually. The way building operations down there have progressed of late years there should be a great increase in the call for sewer pipe, even though it is reported that there is difficulty about financing municipal improvements. The financing end should improve now with war conditions passing and the trade open up accordingly.

Meantime, the report states, that there is said to be considerable demand for various sizes of pipes on the large sugar plantations for sewers, culverts, drainage and other uses. Cement pipe is used to a considerable extent in drainage work.

It is from Uruguay, however, that we hear of the most cement competition, but notwithstanding this, Consul William Dawson, down at Montevideo, seems to think there should be considerable development in the vitrified pipe trade there during the next ten years. Quite a number of projects are already under way for sanitation work in the cities, and an American contractor has estimated that $10,000,000 worth of this kind of work will be done in the near future.

This should make an opening for sewer pipe. The competition so far has been English pipe, and cement pipe made right on the job. It seems that the Americans have been behind the English in getting on the job down there, and it is now high time to get a definite line on the requirements. It is intimated that vitrified pipe will have preference over the cement product if the pipe people get on the job right and make it readily available.

Broadly speaking, all the Latin-American territory which can be readily reached by water routes should furnish a splendid field for the development of trade in sewer pipe. We are steadily developing closer trade relations with those countries, and establishing banking connections, which will help some. Another thing that adds promise to the situation is the general awakening to better sanitation, which always spells more sewers. So the prospects are very bright all around for fruitful missionary work in sewer pipe down that way.

Now is no time for being tolerant with agitators and trouble makers who would interfere with industrial progress, but it is a time to make it decidedly unhealthy for them.

NOTED CERAMIC ENGINEER RETURNS FROM TRIP ABROAD.

SAMUEL J. GEIJSBEEK, CERAMIC ENGINEER, and secretary of the Oregon Clayworkers' Association, of Portland, Ore., was a very welcome visitor at The Clay-Worker sanctum recently. He was on his way home from Europe, where he has spent a couple of months visiting relatives and viewing the war wrecked sections of Belgium and France, where he found the havoc of war much greater and more terrible than it has been pictured. He predicts an early reconstruction and the rehabilitation of industrial establishments over there. Mr. Geijsbeek is a native of Holland and speaks French and German, and so was enabled to gather much information of a reliable sort not obtainable by the ordinary tourists or correspondent, and promises to give the readers of The Clay-Worker an interesting account of same in the near future. Mr. Geijsbeek is a loyal American, has lived in this country since early manhood and is a close observer of industrial conditions, as viewed through American glasses. On that account, his observations will be of unusual interest, coupled with the fact that he is a trained ceramic engineer, and consequently gave particular attention to the status of the clayworking industries of the allied nations. He predicts great changes in the method of operation in England and Europe, made necessary by the increased wages now demanded by the workmen there. The war has brought the standard of wages there much nearer the prevailing wage in the United States than ever before. The whys and wherefores are various and interesting, as the readers of The Clay-Worker will be told later on.

CHINA CLAY AMALGAMATION IN ENGLAND.

Three of the largest firms in the china clay industry of England, whose products are the raw materials used by chemical manufacturers and manufacturing chemists in many household commodities, and are important ingredients in the manufacture of paper, pottery and cotton goods have amalgamated. The object of English China Clays, Ltd., the name of the new company, whose capital is $10,000,000, is to concentrate their activities on the development of markets at home and abroad by means of a highly organized progressive and aggressive policy.

The three firms concerned are the West of England and Great Beam Clay Co., Ltd., Messrs. Martin Bros., Ltd., and the North Cornwall China Clay Co., Ltd. Their properties comprise eighteen china clay mines, two china stone quarries, one ground china stone works, two brick works, and two cooperager. The North Cornwall Co.'s clay deposit is noted for being the largest in the world. There thus comes under the control of a single firm the richest china clay fields in Cornwall and Devon, where alone in Great Britain is china clay found. Those of the West of England Co., are located mainly in the St. Austell, St. Dennis, and St. Stephens districts of Cornwall, those of Martins in St. Stephens, Cornwall and Lee More, to the North East of Plymouth, while the North Cornwall Co., holds the field in the St. Breward district of Cornwall, near Bodmin. The West of England Co.'s origin dates back nearly a hundred years. The yearly output of the clay industry has risen in a hundred years from 2,000 to over a million tons.

The head offices of the new company are at St. Austell with a London office in Chancery-Lane.

If things move as things should move the brick production of the country should start to setting up new records this year.

CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Secondhand Machinery Wanted.

Editor The Clay-Worker:

We are in the market for a combined brick and tile machine, either Freese or Fate make. We also want about 119 secondhand 24-inch gauge, single deck dryer cars. If you can put us in the way of getting what we want, we will appreciate the favor.

Yours truly,
JOHN GRETENCORT, Manager,
Lewistown Brick & Tile Co.
Lewistown, Mont.

Putting Old Plant in First Class Condition.

Editor The Clay-Worker:

Please change my address from Gladbrook, Iowa, to Crawfordsville, Iowa. I purchased the plant of T. J. Brown, at the latter place, the first of this month, and expect to be in active operation by the middle of the month. This plant has been idle three or four years and will take some little time to get it back to first class shape. Will operate under the name of the Crawfordsville Brick & Tile Works. Thank you for your help in getting located.

Yours sincerely,
S. H. McFARLAND.

A Much Belated Convention Echo.

My Dear Randall:

I am thinking that you must think I am a "dandy" for not writing you long before this. We surely did have a fine time at the Pittsburgh convention, and a fine trip south following the convention. The stay in Miami did Mrs. Post a world of good. We did not return home until some time in March, and I have been on the jump ever since. I had about a million brick left to start with, and I have sold all of them, and have burned three kilns beside and they are all gone. Just started burning my fourth kiln. I am getting caught up a little with my orders now, but there is a lot of work in sight, and I am going to have all I can do this year. I sent some brick to Camp Mills in March, but I think they are all through using brick now.

With best regards to you all.

Yours truly,
JOTHAM POST.
Glen Head, L. I., N. Y.

Brick Making in England and Scotland.

Friend Randall:

According to promise I will tell the readers of the Clay-Worker briefly some of the things I saw at the brick plants I visited in Scotland and England. I noticed that a number of the plants used coal for burning, which is obtained from the same bank from which they take their shale. The Hoffman type of continuous kiln is used for burning common brick, and I noticed that at some of the plants there is no effort at all to prevent scumming. At one plant, near Liverpool, the superintendent purposely sets the brick so that the ends will be scummed white. He explained that the white end brick are used as headers in flemish bond brick work. A wall built of scummed brick, with the openings and corners trimmed with clear, bright red brick, presents a very attractive appearance.

The clay or shale is worked very stiff, in some of the plants the brick are set in the kiln direct from the machine. At other plants the brick are partially dried on hot floors. I noticed that very few men were employed on some plants. The work was being done by women, who seemed to be healthy and worked cheerfully. Ten thousand brick per day per machine was the rule at the plants that I visited. Perhaps a larger output may be the rule at other plants, but I did not see any of them. At no plant did I see a tunnel dryer, presume they are used in other localities.

It was a positive pleasure to me to be received so hospitably at every plant I visited. The superintendents were eager to hear about the methods in use in America, and it will not surprise me to hear ere long that our methods have been adopted by some of them. Many workmen in Great Britain are seeking the unattainable, namely low cost of living, high wages and short hours of labor. That condition acts as a partial embargo on manufacture; prospective buyers waiting for lower prices.

Years ago the introduction of steam power in Great Britain made that country the workshop for the whole world. Now there are other workshops in other parts of the world. It is natural and it is good business for buyers to get the most for their money, and unless workmen in Great Britain change their ideas much business will be driven from that country. We, in some parts of America, are waiting for the other fellow to lower prices.

Years ago there were long debates in Congress on the feasibility of resuming special payments. One wise man said that the way to resume was to resume. His advice was acted on and with little disturbance to the business of our country. In a small way I am acting on the same plan. In order to help along normal conditions in business I have lowered the price of brick $2.00 per thousand, though there is no reduction in cost of labor nor in anything that enters into the manufacture of brick.

I believe it to be the patriotic duty of every manufacturer in America at this time to cut profits and thereby encourage building and other business. There is little or no excuse for further hesitation on the part of buyers and builders. In the language of the street, "it makes me tired" to see the word RECONSTRUCTION applied to the present conditions in America. The word implies that there is or has been destruction of some kind in this God blessed country of ours. There has been no destruction, nor is there likely to be.

With many kind wishes for you and the readers of the Clay-Worker, I am, Sincerely,
Milledgeville, Ga. J. W. McMILLAN.

PAVING BRICK MANUFACTURERS TO MEET IN INDIANAPOLIS.

THE ADVISORY COMMITTEE of the National Paving Brick Manufacturers' Association will meet at the office of President W. W. Winslow, in the Fidelity Trust Building, Indianapolis, May 30. The representatives of the territorial organizations will be in attendance. This will include representatives of the Western Paving Brick Manufacturers' Association, G. W. Thurston, Kansas City, secretary; The Illinois Paving Brick Manufacturers' Association, G. H. Reiter, Chicago, manager; The Indiana Paving Brick Manufacturers' Association, W. R. Schoonover, Indianapolis, manager; The Ohio Paving Brick Manufacturers' Association, James R. Marker, Columbus, secretary; The Eastern Paving Brick Manufacturers' Association, Wm. C. Perkins, Philadelphia, secretary; The Southern Paving Brick Manufacturers' Association, J. D. Harvey, Chattanooga, Tenn., secretary, and the National Paving Brick Manufacturers' Association, W. P. Blair, first vice president, and Maurice B. Greenough, Cleveland, secretary. The meeting is timely, in that it will enable those attending to witness the great $50,000 race at the brick-paved Speedway, which occurs the following day.

RALPH P. STODDARD OF CLEVELAND SUCCEEDS C. P. MERTENS AS SECRETARY OF THE COMMON BRICK MANUFACTURERS' ASSOCIATION OF AMERICA

THE COMMON BRICK Manufacturers' Association is to be congratulated on securing the services of Ralph P. Stoddard, as secretary, a position which he is well qualified to fill in a most satisfactory manner. He has had wide experience in organization work, achieved noted success in the organization and establishment of the Society Advocating Fire Elimination at Cleveland five years ago. He is a clever writer, a wide awake up-to-date publicist, and is in many ways peculiarly fitted for the work of organizing the common brick manufacturers of the nation into a live body of trade boosters.

Ralph P. Stoddard, Chicago.

Mr. Stoddard takes up the work with a full knowledge of the effort that will be required, but with an undaunted spirit and an enthusiasm born of unwavering faith in brick as the best building material on earth. He knows and appreciates that those in the building brick industry need to be awakened to their opportunities and that he will prove equal to the occasion in every way is the prediction of all who know him. It is a big job, requires a big man, and Ralph Stoddard is IT..

COMMON BRICK.

Primarily common brick was the father of the clay-working industry in the matter of structural material, and historically it has always been a sort of mainstay and backbone of the industry. And, backbone like, it has been strained at times and made the burden bearer, while at other times it has been neglected and abused in various ways. Yet the common brick industry has not only survived, but there is before it today a bigger field than ever for expansion.

Common brick has had to take the brunt of competition within as well as from without the industry. First it was lumber, then concrete, and finally hollow tile in the clay industry taking on part of the field formerly assigned to common brick. And meantime steel construction had taken unto itself a big share of the same field, so that at times things have looked a bit gloomy for common brick.

But there is always a brighter side and a new day with fresh opportunities, and so it is in the case of common brick. There is an opening of opportunities on the farms and in the cities for what is termed out-buildings which promises to much more than make up for all the ground that has been lost to concrete and to hollow tile. The day of lumber construction is passing, and in the passing it is opening new fields to common brick, so that the way looks brighter now than it has for a decade or more. With proper effort on the part of manufacturers common brick should come into its own during the next few years.

THE YEAR'S SPORTING EVENT.

Liberty Sweepstake Race May 31st, Indianapolis Motor Speedway.

THE WORLD'S GREATEST AUTOMOBILE RACE for the year will occur at the famous brick-paved Speedway at Indianapolis, Saturday, May 31, when a prize of $50,000 will be contested for in a 500-mile race. The world's most famous drivers will compete in this race and other events. Never in the annals of speed sports has there been such an assemblage of international talent as is represented in the galaxy of racing celebrities who will participate in the big Hoosier classic.

France, England, Italy and the United States, the Big Four among the allied nations, will vie for speed supremacy on the great brick oval, pitting the cream of their racing talent and the foremost examples of their mechanical genius against each other in the fray. A war of men and motors, the Indianapolis contest will be more than a personal encounter; rather a conflict between rival systems of civilization and invention.

The Indianapolis classic is unique this year in that it is the only major international event on the motor sports calendar, the French Grand Prix, which formerly divided honors with the Hoosier contest in this respect, having been interdicted until 1920. It will break a tie of three years' duration between the rival continents of Europe and America, each having three Indianapolis championship races to her credit at the present writing, out of the total of six conducted in the past on the big Hoosier track.

The track is two miles and a half in length and sixty feet in width, brick paved, with 2,000 foot turns banked 16 degrees, and was built in 1909, since which time the company has paid out $275,000 in cash prizes. It is estimated that it will take five and one-half hours to complete the 500 mile race. The best average time in any previous race was 89.84 miles per hour. It is expected there will be over 100,000 in attendance. There are forty-three entrants, ten of whom will be eliminated in the premlinary trials, leaving thirty-three of the fastest to start in the great event. The grandstand and boxes have a seating capacity of 60,000, and the grounds, which includes 328 acres, will easily accommodate 200,000. For seats, programs, etc., address Indianapolis Motor Speedway Co., Indianapolis, Ind.

The cement folks are among the active agencies exploiting the popular idea of Build Now.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXXI. MAY, 1919. No. 6

CURRENT COMMENT.

Help boost the Building Game.

* * *

Quite a lot of public construction is being planned but it will take some time to get it under way.

* * *

We are seldom better than we think we are, but we are often better than some other fellow thinks we are.

* * *

There is this consolation about the excess profit tax—you have to make the profit before you can be taxed for it.

* * *

At the present high level of lumber prices brick should find unusual advantages and opportunities in the building world.

* * *

How to take an inventory is one of the things that a whole lot of people have been learning a heap more about than they used to know.

* * *

With about half a million men already out of work it looks like a poor season for starting strikes, but they are bobbing up here and there just the same.

* * *

Had the industry acquired the habit a few years back of making a specific charge for the clay and shale used it would come in handy right now in squeezing down the tax bills.

* * *

A bulletin of the Department of Labor says that it will take approximately $500,000,000 expended in buildings in Maine, New Hampshire, Vermont, Massachussets, Rhode Island and New York to make up the building deficiency incident to war, and that this amount of construction in addition to the normal for the year should be the program in those states for this year.

* * *

Making the farm a better place to live should be a favorite slogan in the agricultural districts this year.

* * *

Among the things experience has impressed upon us lately fire prevention and better sanitation stand out prominently.

* * *

The firebrick folks may have a chance to catch up a bit with back orders now, but at that it looks like plenty doing ahead.

* * *

We want to forget the war and its frightfulness, but we should neither forget nor neglect those who answered the call to the colors.

* * *

The dollar may have lost some of its purchasing power, but it hasn't lost any of those elusive qualities that make it hard to catch and hold.

* * *

Motor truck manufacturers are among the busiest people of the country and the sales reported indicate an enlarged as well as a continued activity.

* * *

Now and then one gets the impression that some of those doing loud shouting about public service are really mainly concerned with personal exploitation.

* * *

The man who invented the scheme of paying time and a half for over time unloaded a lot of trouble on the industrial world without really having any good excuse for doing it.

* * *

Under stress of circumstances the progressive brick men have learned how to burn a thousand brick with much less coal, and this in the end will count for more than the higher cost of coal.

* * *

Most of the home building of the country has been accomplished through building and loan associations and right now is a mighty good time to encourage and assist in the development of these. And just as a hint, what better use could the railway employes make of their extra pay than to put some of it into home building through this channel? It looks like a good time for those located at railway centers to develop some new associations made up specifically of railway men.

MOTOR TRUCKS AND THE FREIGHT PROBLEM.

Here is an interesting question for some of our transportation sharps to wrestle with and figure on: Will the building of good roads and a wider use of motor trucks lessen or increase the volume of railway freight? That the trucks are hauling lots of freight that formerly went by rail, and that they will do more of it in the future, there is no question, but there is a chance that the good roads may lead to so much increased freight movement that the railroads will have more any way. See the point?

PEACE PLANS.

Peace plans are the order of the day. Never before has there been such a world-wide and general planning to push industry and trade that all men may have employment and all the world may prosper. In our own country which comes out of the great conflict the richest country in the world both in finances and raw material resources, there are plans which involve the enlargement of our manufacturing industries, the improvement of roads, the building of more and better homes, the creating of more farms, the revival of city improvement and great constructive undertakings on the part of the government, and the furnishing of machinery, appliances and merchandise to other countries.

THE SEWER PIPE TRADE.

To quite an extent the sewer pipe trade is governed by building operations. Active building means lots of sewer pipe, while dull times in building means slow sales in sewer pipe. So far this year sewer pipe sales have been above normal, which is perhaps due more to mild weather than to any other one cause. What the season as a whole may bring forth depends materially upon activity in building operations.

SILO BLOCKS.

Interest in silos has grown and extended so the past few years that it looks like the silo is to become a part of farm improvement as familiar as the barn itself. Under present conditions this should mean room for a large expansion in the burned clay silo block business. The vitrified or the salt glazed block is the ideal wall material for silos. Of that there seems no question, and now with lumber values high and cheap silos a thing of the past, it would seem that the way is clear to a much bigger business in silo blocks, and that this is a good year in which to get busy at more active exploitation of them.

ADVERTISING AND THE WAR.

The Clay-Worker is in receipt of a bound copy of the report of the Division of Advertising of the Committee on Public Information, the copy in question being dedicated to The Clay-Worker for patriotic contribution of space and services during the war which helped to win the war through advertising.

This report gives some idea of the part advertising played, and of the value of space given free by periodicals. About 800 publishers of weekly and monthly periodicals gave space, worth $159,275.64 a month. On an annual basis this would mean practically two million dollars. About a million and a half dollars of this space was actually used up to the time of the armistice.

The report not only shows the hearty and patriotic response of periodicals, but it will take its place in history as conclusive proof of the value of advertising.

WHAT ABOUT THIS?

We have had forwarded to us by the Bureau of Foreign and Domestic Commerce at Washington, copy of translation of a letter that is an appeal from France for assistance in restoring a destroyed brick and tile yard. The letter is from A. Despature-Cousin, refuged at Corbeilles-du-Catinais (Loiret), and reads as follows:

"I take the liberty of soliciting that you will have the kindness of extending to me your very valuable assistance for the proposition which I have the honor of laying before you.

"I was able to visit the northern part of the country a few days ago. I found my four tile and brick yards entirely demolished. The machinery pillaged, put out of order, etc. Germany will pay, but when and how will we be able to reconstruct our factories? With your permission I will outline my proposition, requesting that you will submit it to one of your colleagues-tile and brick makers of America who would be willing to interest themselves in my condition: Perhaps with their aid, I can at least equip one of my factories. How grateful I should be to those gentlemen for their aid to a co-worker, father of a numerous family, in restoring his patrimony, entirely destroyed."

THE MATTER OF FUEL.

There is no longer a coal shortage, but there is still a fuel problem. Fuel and labor are the big cost items in the clayworking industry. Next to the metal industries the clayworking industries are the largest users of coal in the country for manufacturing purposes. One estimate places the annual coal requirements of the clayworking industry in normal time at nine million tons a year. This makes the clayworking industry a big thing to the coal trade, and entitled by reason of this fact to favorable consideration in the matter of prices. And it is a time to watch the coal market closely and to buy carefully and conservatively. Also, regardless of fluctuations in price, coal is such a big item in the cost of clay products that we should make use of every practical means which gives promise of economy through reducing the quantity of coal required in burning. It is time for a war on fuel waste, whether that waste be in the power plant or at the kilns.

THE HEALTH OF WORKERS.

One of the things military training has demonstrated to us very clearly is the benefit of health, and the necessity for medical attendance to improve health and keep down disease as well as to doctor the sick. The big idea now is, how may we carry this lesson into the industrial world and get the full measure of benefits? The Department of Labor has been taking a hand in this matter, and striving to get industrial heads to make a feature of it. It is a good idea all right, but its application will have to be made with diplomacy or it will beget resentment that will go far toward offsetting the benefits. The individual workman is often resentful of extending supervision over him to the point of looking after the health of himself, and maybe his family, or at least his home surroundings as having a bearing on health conditions. The individual employer who takes an interest in the matter can handle it much better generally in his own way than by trying to follow some prescribed system. And it is a matter which deserves attention, for good health makes for better people as well as better results at work.

THE GOVERNMENT AND BUSINESS.

One of the refreshing signs of the day is to note the changed attitude of the government toward business. Just a short time back we were informed that any combinations or agreements among business men to maintain prices would lead to indictment and prosecution. Lately Governor Fort, of the Federal Trade Commission, in a public address to a gathering of business men made the statement that every argument which could be brought forward in support of the Webb act allowing combinations for the export trade should apply equally to combinations in the domestic trade. Also he urged that our anti-trust laws should be repealed and business men allowed to get together and set forth lists of fair prices.

Comes also Secretary of Commerce Redfield with a desire to see co-operation between the government and the business men, and a plan for bringing something of the kind about. These are cheering signs of the times insofar as they show a changed attitude on the part of the government toward business, but they also bring with them some apprehension of steps toward government direction of business, which is one of the things the average business man fights shy of.

What the business world desires from the government right now is good will and permission to do things, not government direction and domination. In a word, if Congress will but clear the way, and the government will approve instead of interfering the business world will take care of itself and the work of readjustment will progress much better than with too much government direction.

SOOT BLOWERS FOR ALL TYPES OF BOILERS.

IN THE LATEST catalogue of the Marion Machine, Foundry & Supply Company, Marion, Ind., styled "Marion Power Plant Equipment," is a twenty-four page colored supplement devoted to soot blowers for all types of boilers. This contains illustrations and descriptive matter giving intimate knowledge of the Marion Plant Soot Blowers for water tube boilers, Marion duplex soot blowers, front end type for tubular and marine tubular boilers and Marion rotary soot blowers rear end type for tubular and Marine tubular boilers. We illustrate herewith one of the Marion rotary soot blowers, which is especially useful on the average clay products plant. This is a single jet type blower that delivers a small volume of steam at high velocity through the flues. This drives out all loose ash and soot. The steam nozzle contains a number of steam ports having different angles. These ports are opened one at a time. The whole nozzle is rotated upon its axis, which allows each port to successfully direct a steam jet against a fixed section of the flue area. The nozzle is made of a special mixture of cast iron, which stands the high temperature. The blower is mounted in the rear wall of the combustion chamber, as shown in Figure 95; the nozzle setting in a pocket formed by the deep protecting frame set in the brick. In this way it is not subject to the direct heat from the hot gases. The nozzle is fastened to the inside pipe by a coupling and is rotated by means of the hand wheel. Anyone desiring to install an economical method of cleaning boiler tubes should write the Marion Machine, Foundry & Supply Co., Marion, Ind.

The Marion Rotary Soot Blower.

AMERICAN SOCIETY FOR TESTING MATERIALS.

THE ABOVE ORGANIZATION will as usual hold its annual meeting at the Traymore Hotel, Atlantic City, N. J., beginning Tuesday, June 24, and closing Friday, June 27. The program contains many features of unusual interest. The session considering brick, drain tile and ceramic problems, occurs Friday forenoon. Professor Edward Orton, chairman of Committee C-3; Professor A. Marston, chairman of Committee C-6, and Dr. A. V. Bleininger, chairman of Committee C-8, will as heretofore, have charge of the work on brick, drain tile and refractories, respectively. An outline of the program will be given in a subsequent number of The Clay-Worker. It is hoped that all members of the N. B. M. A. who can, will plan to be in attendance. For complete program write C. L. Warwick, assistant secretary A. S. T. M., University of Pennsylvania, Philadelphia.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

required by the act of Congress of August 24, 1912, of The Clay-Worker, published monthly at Indianapolis, Ind., for April 1, 1919.

State of Indiana, County of Marion, ss:

Before me, a notary public in and for the state and county aforesaid, personally appeared Theo. A. Randall, who, having been duly sworn according to law, deposes and says that he is the editor and business manager of The Clay-Worker, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher, T. A. Randall & Co., Inc., Indianapolis, Ind.

Editor, Theo. A. Randall, Indianapolis, Ind.

Managing Editor, none.

Business manager, Theo. A. Randall, Indianapolis, Ind.

Owners are T. A. Randall & Co., Inc., Indianapolis, Ind.; Theo. A. Randall and James E. Randall, Indianapolis, Ind.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

That the two paragraphs next above, giving the names of the owners, stockholders, security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Theo. A. Randall, Editor, Owner.

Sworn to and subscribed before me this 27th day of March, 1919.

(Signed) CHRISTA A. LEWIS, Notary Public.

[Seal] My commission expires June 30, 1921.

KOAL KOST KILLERS.

There is such a kick on the high cost of brick and other Clay products that it is only the part of wisdom and patriotism to cheapen the cost where possible.

Two of the greatest opportunities for saving in cost are in Burning and Drying.

The Haigh Kiln will cut your burning cost square in two and the American Waste Heat Dryer will utilize the waste heat and gases from the kiln to dry your product.

The Clay industry really needs these two bigsaving factors to popularize clay products with the public by cheapening the cost without cheapening quality. You need them too as a means of making it possible for you to compete with other building materials.

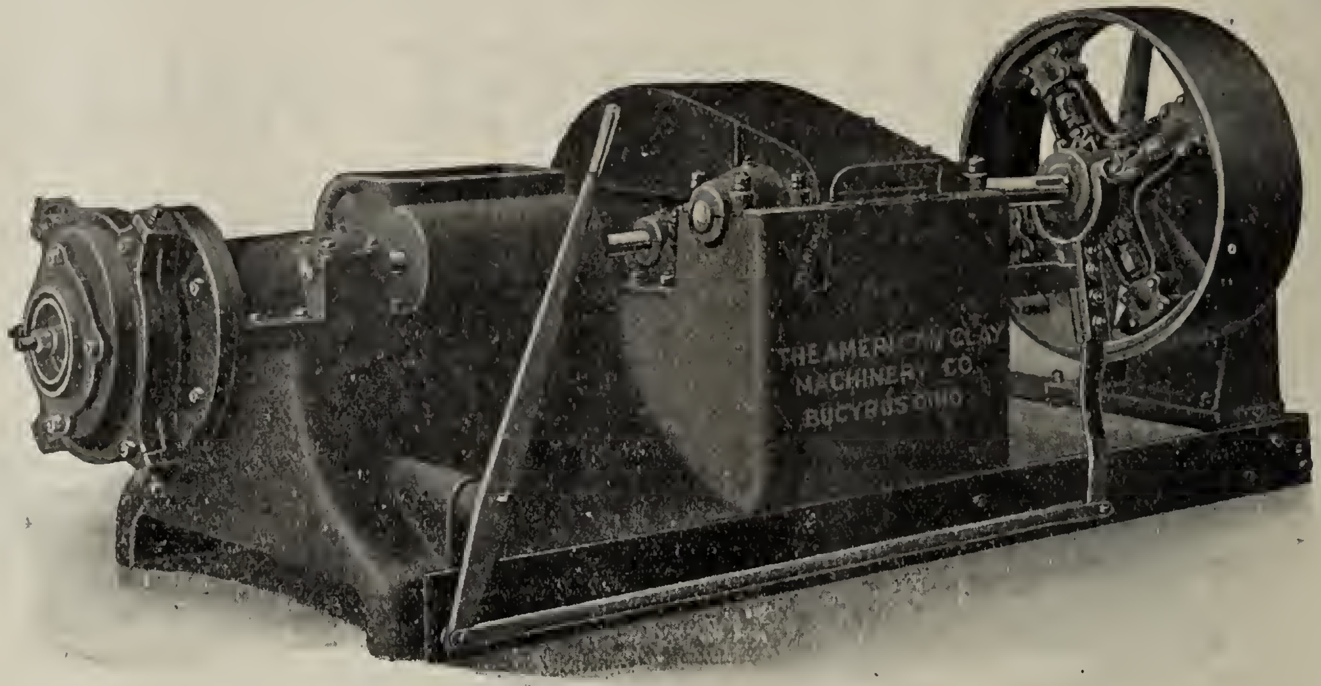
Let us estimate the cost of this equipment on your yards and show you what it will save you.

It will pay for its self in a few years and make it possible for you to compete with better profit than at present.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

**The Best
Auger
Machine
For
Making
Tile.**



The American No. 281 Auger Tile Machine

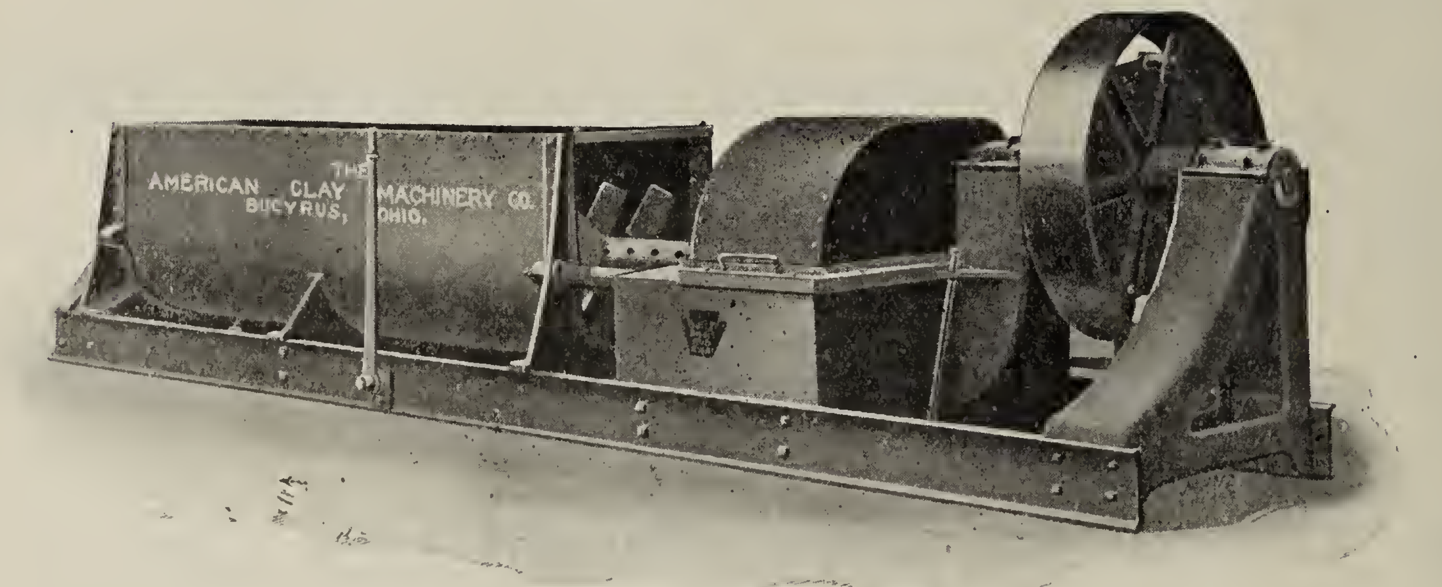
The American No. 281 Tile Machine is adapted for making drain tile of a superior quality. It has a wide range in size and is also adapted for making other Hollow Ware and Brick. It is a splendidly built machine. Light on power and repairs and heavy on production. Full description on request.

American No. 303 Pug Mill

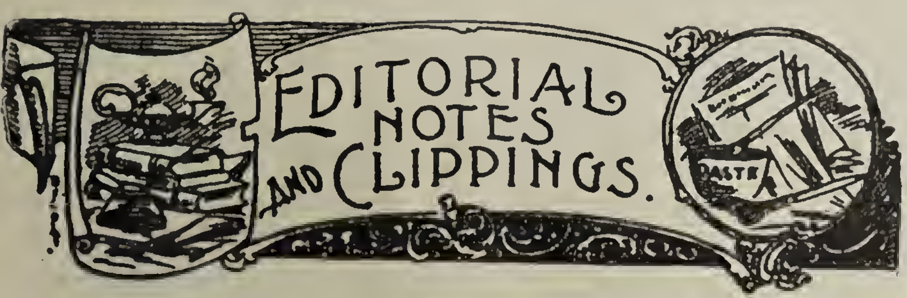
The American No. 303 Pug Mill is one of our line of dependable pug mills. They are built both in the pushing and pulling type but in other respects are similar. They are all light on power being unusually easy running. They have a large capacity and a low upkeep cost. Get description. We buid every machine required for making Clay Products.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



American No. 303 Pug Mill



EDITORIAL NOTES AND CLIPPINGS.

The Cleveland Clay Products Co. has been incorporated by Leo A. Krueger nad others, with $10,000 capital stock.

Raymond MacNamara, manager of the Leuton Brick Manufacturing Co., of Philadelphia, died at his home in that city, May 1.

J. H. Wilkerson & Son, of Milford, Del., would like to correspond with manufacturers of oil-burning equipment for burning brick.

J. B. Wray, A. F. Richards and others have incorporated the Scottsville Brick Company of Knoxville, Tenn. The company has been operating for some time.

The plant of the Dowling Brick Company, Billings, Mont., was burned the latter part of April. The loss, which was estimated at $15,000, was partly covered by insurance.

H. L. Grubbs, of Fairview, Pa., writes that he wants to carry a side line of sewer pipe and drain tile, and would like to get in touch with manufacturers of that class of goods in Ohio.

Zelnicker of St. Louis, Mo., has recently issued a bulletin of interest to clayworkers looking for new and second hand rails and accessories. A copy may be had by asking for Bulletin 258.

The Universal Brick & Tile Co., of Oskaloosa, Mo., has been making a number of improvements in the plant equipment, including the installation of a new locomotive for hauling shale from the pit.

L. M. Johnson, who has been associated with the Martinsville Brick Co., Martinsville, Ind., as manager, has severed his connection with that firm, to take a similar position with the Robinson Brick Works at Ransom, W. Va.

Mr. Drusius H. Nichols and Mr. John C. Moore, formerly managing director and assistant director of the Allied Publicity Bureau, announce the organization of the Nichols-Moore Company, general advertising agents, to be located at 11705 Detroit Ave., Cleveland, Ohio.

C. M. Kruger of 1329 Amsterdam Avenue, New York, and others, have purchased from Thomas C. Vernon of Mechanicville a tract of land located across the Hudson River, about one and one-half miles northeast of Mechanicville, on which they will erect a plant for the manufacture of wire-cut brick. The plant will have a capacity of 30,000 to start with.

The Central Refractories Company of Newark, Ohio, which recently increased its capitalization from $10,000 to $1,500,000, will establish agencies in a number of the eastern cities. The company, which manufactures a high grade of fire brick, formerly operated under the name of the Ohio State Brick & Stone Company, has three plants in operation at Shawnee, New Lexington and Moxahala. George Hayden of Newark is president, and C. B. Young, secretary, of the company.

Augusta, Ga., is to have another brick manufacturing concern in a short time. It will operate under the name of the Independent Brick Company, with a capital stock of $25,000. The company has purchased a tract of thirty acres and a new plant is already under way. The officers of the company are: President, Edward Cox, Marion, S. C.; vice-president, L. S. Morrison, Marlboro, S. C.; secretary and treasurer, C. H. Williams, Atlanta, and John McKenzie, Augusta, general manager. All of these gentlemen have had many years' experience in the manufacture and selling of brick, so that the success of the venture is assured from the outset.

A fire which started in the silica department of the Parker-Russell Mining & Mfg. Co., 330 Morganford Road, St. Louis, destroyed 20 per cent of the floor space, causing a loss of $20,000. The fire is believed to have been caused by crossed wires. A high wind fanned the flames and caused the fire to spread rapidly before it was controlled. Lemon Parker, president and general manager of the company, stated to The Clay-Worker representative that they would rebuild at once.

The Elgin Standard Brick Manufacturing Company of Elgin, Texas, has been chartered with $75,000. Those interested are W. C. Rivers, C. W. Prewitt and W. H. Rivers, Jr.

O. J. Deegan, and others, of Ironton, Ohio, have purchased the plant and holdings of the Petersburg Fire Brick & Tile Company, of Coal Grove, Ohio, and expects to incorporate a company in the very near future.

The Liberty Clay Products Company of Youngstown, Ohio, has been incorporated with $500,000 capital stock. The incorporators are Fred Kanengeiser, James W. Morgan, Union DeFord, Clyde W. Osborne and J. W. Backburn.

The entire plant of the Parkersburg (W. Va.) Brick Works, 1901 Staunton Ave., with the exception of the machine shop and office building, was destroyed by fire May 7. This was one of the largest brick plants in that section, and had been in operation many years. It will be rebuilt without delay.

William Schleicher, Jr., at one time president of the Queen's Run Fire Brick Compauy, Lock Haven, Pa., the North Bend Fire Brick Co., Gleasonton, Pa., and the West Branch Fire Brick Co., Renovo, Pa., died at his home in Warwick, N. Y., May 1. Mr. Schleicher retired from active business about three years ago.

A number of the brick manufacturers in Connecticut suffered quite a loss from the cold wave which visited that section early in May. R. O. Clark & Son Brick Company of East Berlin, The Berlin Brick Company, and the Murray Brick Company at Kensington, had brick on the open yards which were damaged by the heavy frost.

The E. I. Du Pont De Nemours & Co., Wilmington, Del., manufacturers of explosives, announce that Mr. E. T. Doremus, has been transferred to that company as general eastern manager with headquarters in Shanghai, China, and Mr. E. R. Galvin has been appointed manager of the sporting powder division to succeed Mr. Doremus.

A large deposit of silica sand has been located near Monroe, La., convenient to railway, water and gas. It is estimated that the pit contains about 18,000,000 yards of sand, gravel and road-building material underlaid by a very large strata of silica or glass sand. J. E. Morgan, W. L. Morgan and H. M. Severance of Monroe will develop the new find.

The Steubenville Coal & Mining Company has purchased the stock of the Nicholson Brick Company and has taken over the brick plant, located in the rear of the High Shaft, formerly operated by the Nicholson and McCook interests of this city. The brick plant is already in operation under the management of the new owners, and the first kilns of brick will be drawn and marketed early in June. The Nicholson Brick Company will surrender its charter. The coal company will operate the brick plant in connection with its coal mining operations and expects to find a ready local market for the product.

Contract has been let for the construction of the new plant of the New Castle Mining & Clay Products Co., New Castle, Pa. The plant will have an initial capacity of 30,000 bricks a day, with facilities for increasing the output to 90,000 when demand justifies. The plant will be operated electrically, and will be equipped throughout with modern clayworking equipment. The company was organized just about the time the United States entered the war, and so all plans for building the plant were held up until this spring. The officers are M. A. McLure, president; George T. Weingartner, vice-president; C. H. Andrews, secretary and terasurer. Directors are Edward W. Beadel, J. A. Butler, F. L. Rentz, M. A. McLure, C. H. Andrews and George T. Weingartner.

After being idle for about six months, the plant of the former Oskaloosa (Iowa) Vitrified Brick Company is again to resume active operation. By virtue of a change in ownership, T. J. Neiswanger, the owner of the Harvey Brick & Tile Company, Harvey, Iowa, has come into possession of the Oskaloosa plant, and has acquired all of the stock of the company. When the repairs and alterations are all completed the yard and kilns will be in first class condition and ready for the handling of a large amount of business. The company will be organized and a new name is likely to be adopted and the general office of both the Oskaloosa and Harvey plants will be located here, and the two enterprises will be run in conjunction with each other. Mr. Neiswanger is a progressive and energetic business man, thoroughly ac-

EDITORIAL NOTES AND CLIPPINGS—Continued.

quainted with the business, having had an experience of sixteen years in the making of clay productions in the form of brick, hollow tile and fireproof building blocks.

The plant of the Corinth (Miss.) Brick Company, which has been idle for some time is being improved and will be placed in operation.

The Elgin Standard Brick Mfg. Co., of Elgin, Texas, has been incorporated by W. D. River, G. W. Prewitt and W. H. Rivers, Jr., with $75,000 capital stock.

The Thurber Brick Company, Thurber, Texas, recently booked an order for nearly 1,000,000 paving brick to be used by the government at Fort Crocket, at Galveston, Tex.

R. P. Hufstetler, C. R. Hix and E. J. Lunsford have purchased the plant of the Chatsworth Brick Co., Chatsworth, Ga. Additional equipment will be added and the plant improved generally.

John Gretencort, manager of the Lewistown (Mont.) Brick & Tile Co., is in the market for second-hand 24-inch gauge single deck dryer cars, and also for a second-hand combined Freese or Fate brick and tile machine.

The Fort Smith Brick Company, Fort Smith, Ark., formerly the Burke Brick & Tile Company, is running to full capacity, with a prospect of a good season. T. B. Weaver is secretary, treasurer and general manager of the company.

The Molalla Fire Clay Co., of Molallo, Ore., which has been in a formative period for the past four years, is now erecting a plant which they hope to have in operation in another month. The company owns 160 acres of clay which has been tested to the full satisfaction of the owners.

With half of their former employes back again, Springfield (Ill.) Paving Brick Company reopened its brick yard recently, following a year of idleness caused by the war. By the end of this week the full force of one hundred men will be working, and the daily output will be 100,000 common and paving brick.

The H. H. Dailey Clay Products Co. will build a new pottery at Vancouver, B. C. The plant will be built in four units and the kilns for the first unit will burn the brick for the rest of the buildings. The company will make brick and hollow ware in addition to porcelain electrical appliances and heavy chinaware. Most of the clay will be shipped in from Oregon. A. L. Haley is in charge of the construction of the plant.

Manufacture of brick for building purposes is now being resumed in Walla Walla, Wash., after nearly two years' cessation owing to war restrictions. The Walla Walla Construction Company has a fine yard in the northern outskirts of the city, but its supply of clay comes from near Dixie, Wash. During the war enough cars could not be secured to bring the clay to the yards so they were closed and thereafter it was soon almost impossible to buy building brick in any quantity.

The plant of the Yankton (S. Dak.) Brick & Tile Co. has been purchased by Howard Yelgerhaus and D. Sternburg, of Orange City, Iowa. The Yankton Brick & Tile Co. is one of the very few manufacturers of building material in South Dakota and the territory for the distribution of their product and the demand for it is unlimited. Under the management of the new owners who will devote their entire time and attention to this plant, it should be in operation continuously. Mr. D. Sternbury will be the manager of the manufacturing end of the plant while Mr. Yelgerhaus will be in charge of the sales.

While crossing a river to attend a meeting of the Silica Operators' Club composed of heads of the departments of fire brick plants in the vicinity of Lewiston, Pa., the boat in which twelve men were passengers was capsized and seven men were drowned, including W. G. Fisher, secretary; John Wolfe, storehouse keeper, and Chester R. Moore, foreman of the Standard Refractories Co., Claysburg; U. S. Barmon, superintendent, and J. Cloyd, manager of the Federal Refractories Co., Alexandria, and J. L. Miller, superintendent of the Superior Silica Brick Co., of Port Matilda, Pa. The river was badly swollen, owing to recent rains, and while one boat load crossed safely, the other upset in the middle of the stream and the men sank before help could reach them.

Wm. Sedgley is interested in starting a brickmaking plant at Tekamah, Neb.

Harry Hardy is at the head of a new company recently organized at Bridgeport, Texas, to manufacture brick.

The Childersburg Brick Co., of Childersburg, Ala., has been incorporated with a limited capital stock.

The Mexia Press Brick Company will spend $25,000 enlarging and repairing its plant at Mexia, Texas.

R. A. Brown, E. W. Grandy and C. L. Voight have organized the Norfolk Pressed Brick Co., of Norfolk, Va. Mr. Brown is president of the concern.

The Charleston Brick & Tile Co., Charleston, Miss., is in the market for about $10,000 worth of brick and tile machinery.

R. W. Payne expects to increase the capacity of his brick plant at Drakes Branch, Va., from 20,000 to 40,000 brick per day, and will install the necessary machinery.

After being closed down since January 15, the Sayre & Fisher Co., of Sayreville, N. J., began manufacturing repress building brick the latter part of April. The open yard will not be put in operation until the weather is more settled.

George E. Bowen, general manager of the Dover Fire Brick Co., died at his home in Strasburg, Ohio, last month of smallpox, following a severe attack of influenza which had left him in a weakened condition. A wife and one son survive.

C. H. Andrews, secretary-treasurer of the New Castle Mining & Mfg. Co., New Castle, Pa., writes that their new plant is to be modern in every detail, with electric driven individual units, etc. Mr. Andrews is starting right with this new plant, in taking out membership in the National Brick Manufacturers' Association.

At a meeting, Monday last, of the board of directors of the National Fire Proofing Company the following officers were elected: W. L. Curry, chairman of the board, succeeding the late Col. J. B. Finley; H. M. Keasbey, of New York City, president, succeeding the late W. D. Henry; V. L. Yepsen, vice-president; O. G. Jones, secretary, and J. P. Robbins, treasurer, the latter three being re-elected. The new president of the company has been a vice-president and its Eastern manager since 1902, and is widely known throughout the building industry of the country.

ALONG THE HUDSON RIVER.

A trip through the Hudson river brick making district a few days ago disclosed the fact that operations haven't begun in a yard in Haverstraw. They were standing as silent as they stood all last winter and a part of last summer. The yards were cleaned up last fall, or early last summer, as the case might be, and there they are today, with no activity and as one man put it no orders to induce the makers to get to work. Some of the yards will start operations shortly, others will not re-open this summer, it was said. Labor shortage, high prices of all things which enter into brick manufacture, and similar objections are raised against making this season, but chiefly it is the building situation which prevents the sale of brick. Some builders undertake to point out that it is the high price of brick which has stopped manufacturing. It is impossible for men to buy building material, especially brick, they say, at present prices and until prices go down it need hardly be expected that much will be done in this dircetion.

Meanwhile, the great industry along the Hudson river is languishing because of the unfortunate conditions which exist. True, it is possible to start the yards and develop a business now, but usually they have begun operations before this time and to see them silent now, when yards elsewhere are opening indicates something of the conditions which exist in the building industry in New York, the great market for the Hudson river yards.

SIMPLICITY

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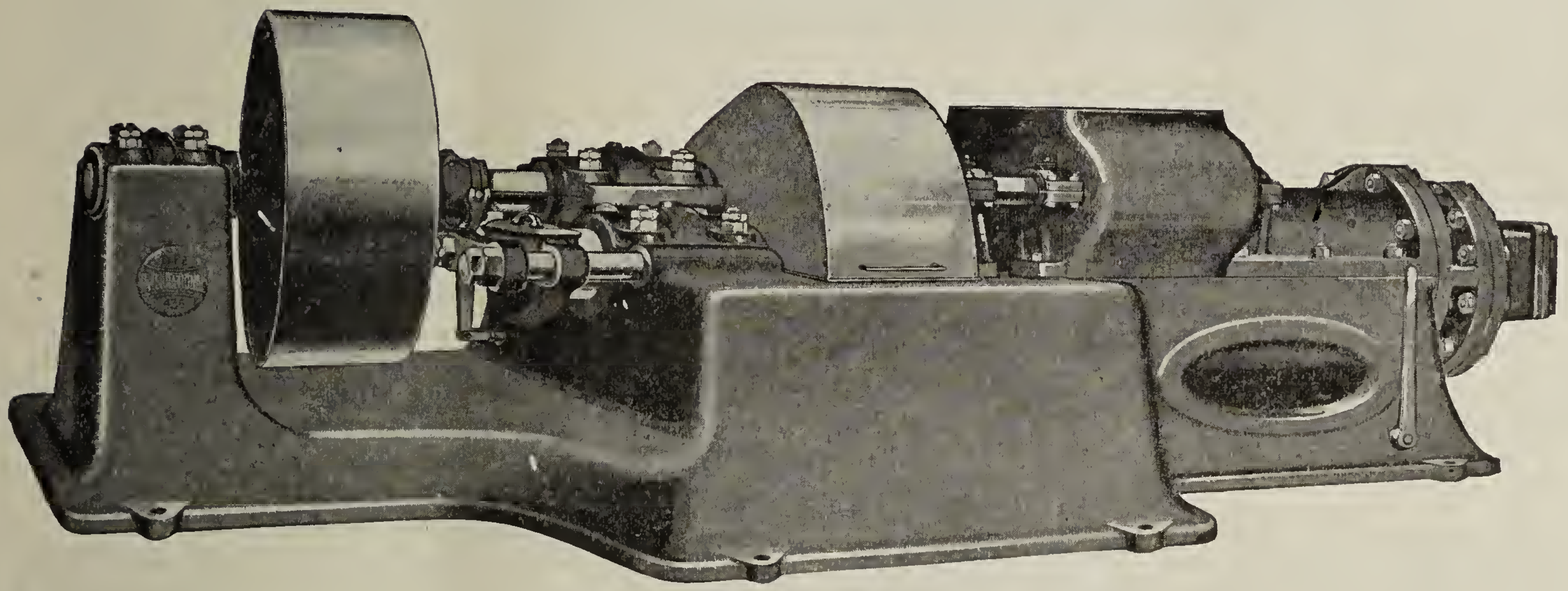
TWO SHAFTS
TWO GEARS



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Mention THE CLAY-WORKER.

Written for The Clay-Worker.

WITH THE CINCINNATI BRICK AND BUILDING MEN.

IT BEGINS to look like old times here. There is an awakening in the building industry that has become keen enough to give the aspect of the situation more than a common prospect, and the outlook is certainly far better than it has been for months. There has been an extra effort here to induce the public to build. There has been a very decided scarcity of residences and the situation in this way has been very annoying. Property is said to be bringing a high price, and that it is not more costly to build now than to buy.

Some time ago Mayor Galvin appointed a committee of five to make an investigation of the subject of building, taking note of all the conditions pertaining thereto. The committee was made up of architects, builders and material men, and the finding of this committee was that it was the ideal time to build. Prices on material here are lower than in many cities, and the labor situation is very satisfactory. The public has therefore been urged to build now and the effect has been at least to prove that the realization of this is at hand.

The Builders' Exchange has sent a letter to W. C. Culkins, Cincinnati representative of the United States Department of Labor at Washington, urging the public to build now as the prices will likely advance rather than decline. The exchange is strongly in favor of the idea of Own-Your-Own-Home campaign and will gladly co-operate in any way to help this idea into a larger realization.

There has been an advance in the wages of some kinds of building help here, and a few men are now on strike but the situation is far from being unsatisfactory, and the outlook does not at this time indicate that there will be anything of a serious nature here. Therefore the prospective building public can feel easy on this score.

The local brick plants are beginning to operate some, but not to any great extent as yet, as the demand for brick has not become very marked. One company has a number of brick on hand that were to have been used on the Ancor plant that was begun by the Government for a nitrate plant and will dispose of these before resuming operations at its own plant.

There has been a better demand with the face brick men of late, and indications look more promising in this way. While the sales are not brisk, the inquiries and prospects are increasing and the tone of the market is far more hopeful than it has been for a long time.

One of the latest projects to be given serious consideration here has been made public. It is the building of a large and costly moving picture theatre at the northeast corner of Vine and Seventh streets. The building will cover a section 100 by 134 feet on both streets, and the cost of the building is estimated to be about $400,000. Ascher Bros., of Chicago, who operate a number of picture theatres in that city are the parties who are to build the theatre here.

Myers Y. Cooper is letting contracts for seven houses in the Hyde Park district, costing about $70,000. Mr. Cooper believes that this is an opportune time to build, as homes are are now bringing a high price, and the matter of new buildings should be given consideration. One house to cost $20,000 will be builded on Observatory road near Massard Ave., another on Grace avenue will cost $12,000, four on Grace avenue will cost from $7,500 to $10,000, and one at Kendall and Dana avenues will cost $6,000.

Plans have been prepared by Jos. G. Steinkamp & Bros., architects, for a science laboratory building to be erected on Dana avenue for St. Xavier's College. The contract is in the hands of the Liebold-Farrell Building Co., and the structure will be three stories high, of brick and concrete, 142 by 61 feet. It will contain lecture and class rooms and cost about $50,000.

Hiram M. Rulison, has given a contract for the building of twenty California bungalows to the Liebold-Farrell Building Co., to be erected at Lockman and Dale avenues. The average cost will be $4,000 each, exclusive of the ground.

Rodenstein and Surman, architects, have given the Leibold-Farrell Co., the contract for the building of a brick bungalow on Elizabeth Place, Bond Hill, for A. Widman. It will cost altogether about $14,000.

Louis Belmont, architect, has made plans for a brick bungalow at 2100 Francis Lane, Walnut Hills to cost $10,000.

The Fireproof Stone Brick Co., is being formed here by C. F. Wendeln, F. Rotert, C. R. Lingo, E. Schiff and H. H. Shafer. The present offices are in the Lincoln Inn Court building. The company is about to close a deal for the purchase of a building site and will manufacture stone and face brick to meet the architectural demands of the building color scheme. Mr. Wendeln will be president and general manager. When the plant is in operation the capital stock will be increased to $500,000, which will be used in the establishment of subsidiary concerns.

The E. F. Grand Brick Co., finds the conditions to be much better and the outlook promising.

The Moores'-Coney Co., note that the situation here is some improved, but still lacking in old activity.

The Dolly Varden Chocolate Co., located on Laurel street, just west of Central Ave., has given a contract for the erection of an addition to its plant to cost about $80,000, to the Ferro-Concrete Construction Co. It will be six stories high, 53 by 100 feet. The plans were prepared by Tietig and Lee, architects.

CINCY.

FACE BRICK AND HOLLOW TILE.

One of the good signs of the times is to be seen in the present disposition of the face brick people and the hollow tile folks to work together in closer harmony. There was a time when the hollow tile folks seemed a bit inclined to steer away from brick and to look favorably upon a stucco finish for the outside of hollow tile walls, but now there appears to be a pretty general conviction among them that tile faced with brick is a better combination. This is as it should be; clay products are clay products, and every clayworker is a member of the family and should have the family interest at heart while pushing his own particular business. We may have a few family rows now and then, but let us avoid those divisions which will set one part of the family permanently against the other. There is room for all, and the way for all to fare better is to pull better together.

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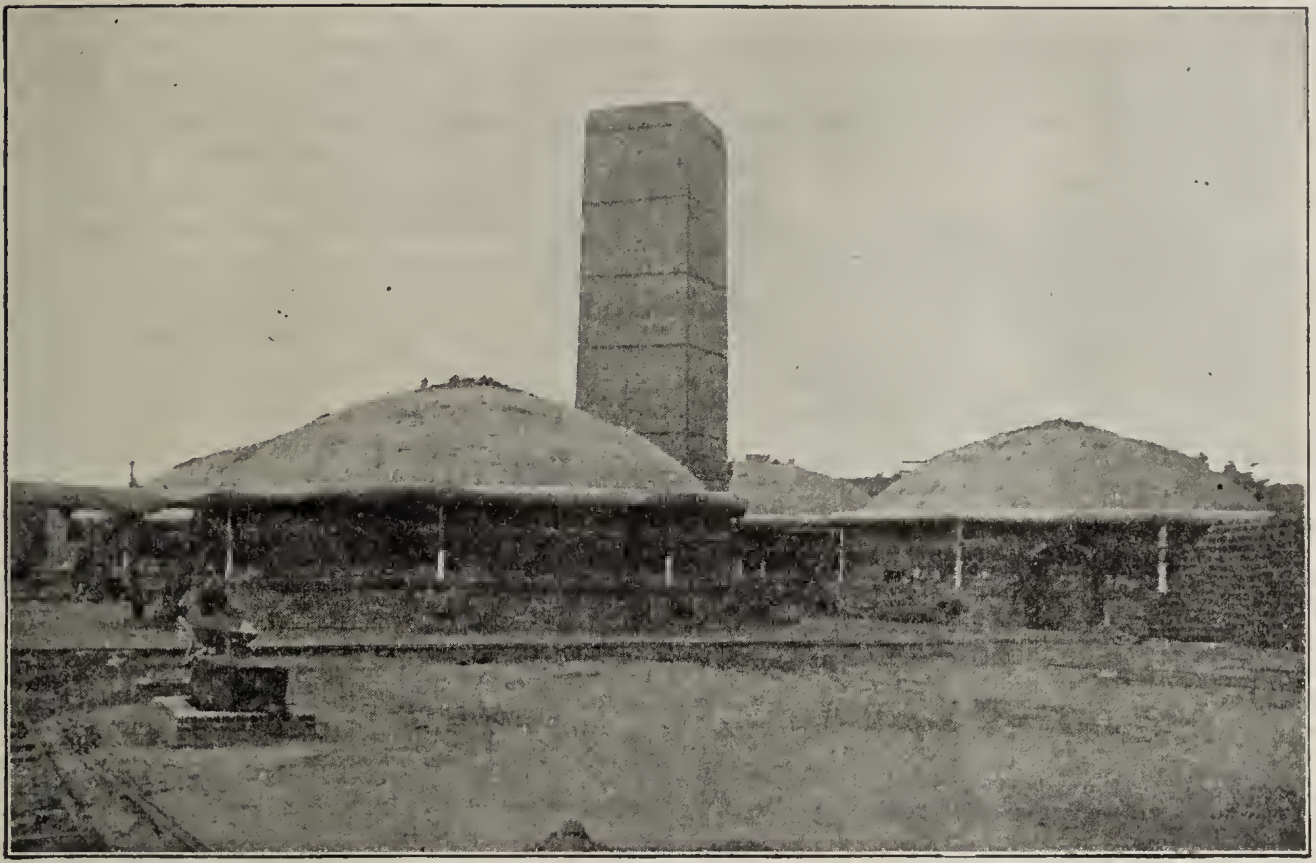

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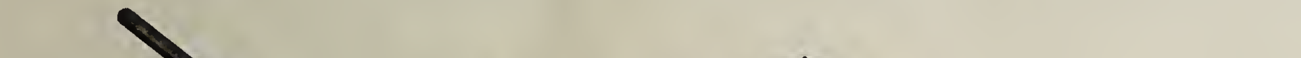

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Written for The Clay-Worker.

MILWAUKEE AND WISCONSIN NEWS

BUILDERS OF TWO types of construction have arrived at the conclusion that it is folly to wait any longer before beginning on proposed building work in anticipation of lower costs and prices. These are the industrial and home builders, who have begun to realize that the sooner they get their proposed buildings under way and completed, the earlier they will begin to realize profits off their investments.

An interview with a representative of a leading Milwaukee building material supply house, devoted exclusively to clay products, gave the writer a clear understanding of the situation in Wisconsin.

"The situation at this time is better than it has been for several years, due, of course, to the cessation of hostilities and the resumption of normal or pre-war business conditions," said the brick supply man. "We have anticipated a revival of construction and the demands for clay products for several months with the announcement of proposed construction and the absolute necessity of additional manufacturing facilities in industrial lines as well and house, flat and apartment construction to overcome the vital shortage of dwelling places.

"Up to a few weeks ago there was a strong pessimistic feeling among certain architects, builders and supply men who were inclined to look at the situation without enthusiasm. Prices of material and labor were high in conformity with similar high prices in all other lines of industry. Just what they expected would happen to reduce prices is difficult to imagine because it is obvious that higher labor and material prices were brought about by necessity which forced up prices on everything else. There has, of course, been a natural tendency towards lower prices but this has not been pronounced and was merely a slight readjustment in some cases of exorbitant prices due to war conditions. However, there can possibly be no pronounced reduction of building material prices or anything else figuring into construction unless there be a corresponding reduction in the cost of living and the like.

"The housing situation is serious in Milwaukee and elsewhere in Wisconsin. Hundreds of dwelling places are absolutely necessary at once. It is said that the demand for housing quarters at present is about seventy times greater than the number available for occupancy. Many new buildings are being erected, but are not yet ready for tenants. The higher rents demanded by owners has raised a cry from tenants but it is only natural that higher rents follow the general increased living costs. The assurance of reasonable returns from investments in living quarters is a stimulant in construction of that type of building. A large number of brick apartment buildings are now under way and contemplated for immediate construction. Clay product prices compare favorably with prices of other building materials and are therefore favored more than ever."

"Taken as a whole the outlook for 1919 is the best in our experience," said John G. D. Mack, state chief engineer in a review of work of the department of engineering for the first three months of the year. "The public is more favorable to road improvements than ever before. Ample funds for construction are in sight. The same is true of the maintenance work which appears established on a firm basis. With the return of materials to prices approximating those justified, a wonderful improvement in the highways of the state should be accomplished."

However doubtful may be the attitude of some in regard to the resumption of the construction work on a large scale, building permits issued are positive enough proof that conditions are actually improved. The report of the building inspection department of Milwaukee reveals that operations here for the first four months of 1919 are nearly $2,000,000 in excess of the figures for the same four months in 1918. During April this year, 546 permits were issued, valued at $1,804,521, making a total for the first four months of $3,471,269. In April last year, 389 permits were issued, representing a value of $733,817, making a total for the first four months of 1918 $1,490,409.

That the general public now realizes that clay products are not excessively high and that there are positive reasons for the advance of prices since pre-war times, is the opinion of a manufacturer in a discussion of the situation. Labor prices are high and with the gradual resumption of normal business cannot possibly decline but, on the other hand, there will result a shortage of help. Freight rates have caused an increase of prices which the manufacturer is not responsible for. Other items of manufacture, such as coal, will tend to hold up prices.

Badger.

INDUSTRIAL TRAINING AND FOREIGN TRADE.

"It is up to American industries to learn as much from the war as have the industries of France and England"—that, in substance, is the message contained in a vest pocket bulletin entitled, "Industrial Training and Foreign Trade," recently issued by the U. S. Training Service of the Department of Labor at Washington. During the war, training conducted in the factory or shop to teach the workers the best ways of doing their tasks enabled the allies as well as America to keep up production despite the drafting of millions of men, the bulletin explains.

In meeting the war emeregncy by training new workers, industry abroad, and to some extent in this country, has learned an invaluable lesson for peace times; namely, that training of a similar character, but adapted to the needs of old employes as well as new, results in an immense benefit to the workers and industry. In those crucial days, when the lines of commerce and trade are being established, the bulletin contends, America can not afford to be behind foreign nations in applying this lesson.

Charles T. Clayton, Director of the Training Service, emphasizes the need of training broadly, so that the workers become more versatile as well as more highly efficient. The chief task of the training service is to advise manufacturers who are interested in establishing training and to provide them with suitable courses in training methods—courses worked out by study and research covering the whole field of industry. Copies of this and other recent bulletins on industrial training will be sent free to any person addressing the U. S. Training Service of the Department of Labor, Washington, D. C.

THE GANISTER OUTPUT.

According to figures compiled under the direction of G. F. Loughlin, of the U. S. Geological Survey, the output of ganister in 1918 amounted to 1,273,800 short tons, valued at $1,668,192. The ganister is used for making silica brick, ferrosilicon, and furnace and converter linings. And this time, for the first time on record, the statistics are so made up as to show the quantity used for different purposes. It was silica brick which called for the bulk of the output, the total used for this purpose amounting to 1,005,088 tons. Furnace and converter linings called for 193,563 tons, and ferrosilicon 75,149 tons. The average price per ton of that used for brick was $1.26. Pennsylvania produced nearly three fourths of the output, Wisconsin, Ohio and Colorado being the only other states producing enough for separate state reports.

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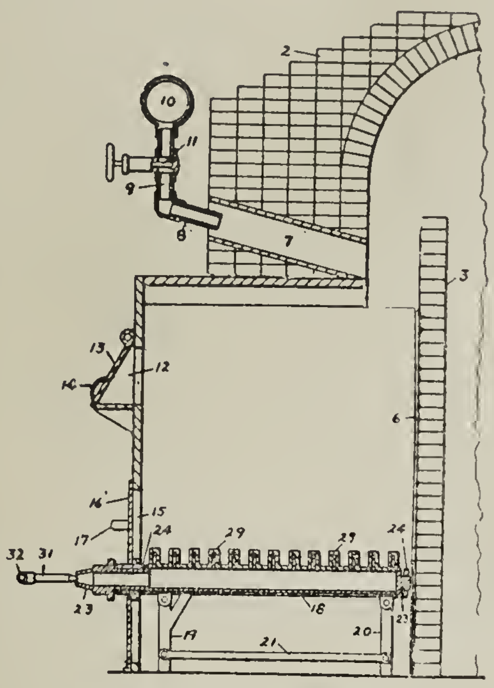

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Inventor of Underwood Produce-Gas System.

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Written for the Clay-Worker.

AMONG PHILADELPHIA BRICK MEN.

BEGINNING WITH THE FIRST of the month the demand for bricks and other clay products used for building purposes picked up perceptibly over last month. The call for brick was gathering momentum each day and was further stimulated by the keen public interest manifested in the local "Own Your Home" campaign, which was inaugurated with an exhibition comprised of all materials that go into the building of homes on April 21, at the First Regiment Armory. The affair was a complete success, and to that can be attributed the fact that the local building contractors have gone ahead with a larger number of building operations that they had anticipated before the opening of the "Own Your Home" campaign. It was estimated by officials of the Philadelphia Real Estate Board, under whose auspices the exposition was held, that fully 80 percent. of the thousands who attended the exhibition at the armory were prospective home buyers. Before the opening of the exposition there was a meeting of the Realty Board and the building contractors for the purpose of fully considering the extent that building operations, as far as housing was concerned, could be carried on during this year. The meeting finally came to the conclusion that the building contractors of the city should go ahead with their spring program, but on a very small scale. Things were changed materially, and for the better, after the tremenduous success of the "Own Your Home" campaign became evident. It was admitted before the campaign was launched that the solution of the city's housing virtually rested upon the success of the campaign. The houses built in Philadelphia last year numbered exactly 969. In 1916 there were 7,762 houses erected. Even this number, it was declared by realty ezperts at the exposition, was not sufficient to meet the demand of a constantly expanding population, and that fully eleven thousand new houses a year would have to be built to keep pace with the growth of the poplation. But where to put 11,000 houses is a puzzle to the realty men, there being land space on the present city plan for no more than 3,5000 houses, according to the calculation of the experts. Realty men and building contractors refuse to give an estimate at the present time as to how much will be done this year to bring Philadelphia out of its present dearth of homes. It is a certainty, however, that no matter how diligently the building program is pressed Philadelphia will be far behind its normal building program at the close of the year.

The contract for a group of buildings for League Island Park has officially been awarded to Edward Fay & Son. The group includes a boathouse, superintendent's office and stables, band stand, overlook and two comfort buildings. The buildings will be of one and two-story brick and will cost about $270,000. Ralph E. White is the architect.

Plans have been prepared by McKim, Mead & White, of New York, for the construction of a hotel with 2,400 sleeping rooms and 2,400 baths, to be erected on three blocks of beach frontage at Albany avenue, Chelsea, N. J. Plans of the architects are in the hands of New York fiscal agents, who hope to enlist the DuPont interests in the enterprise. The estimated cost, including the site, is $10,000,000. The hotel will be three times larger than the Traymore, at present the largest hotel resort in the world, and 400 rooms larger than the Pennsylvania Hotel in New York. Among its features will be a theater, two swimming pools and a large convention hall. Under present plans the huge hotel will be constructed almost entirely of brick.

Chambers Brothers' Company, manufacturers of brick machinery, report that business at the present writing is nothing to be enthusiastic about. They do, however, report one small order for a firm in Shanghai, China.

A talk with the veteran brick manufacturer, William Conway, this morning bore out our contention that the brick business, as far as Philadelphia is concerned, is exceedingly lively and more. It is Mr. Conway's opinion that the demand will continue brisk for some time to come.

Another encouraging report comes from the office of William Kolb, well-known manufacturer of fire brick, to the effect that business is on the boom, not only in domestic circles, but that there are a number of foreign inquiries coming in. Mr. Kolb is of the opinion that as soon as the peace problem is definitely settled there will be a boom felt, not only for domestic use, but for foreign as well, and the latter in large way.

Dr. C. B. Thwing, of the Thwing Instrument Company, is making a business trip throughout the west, his principal stopping points being Chicago and St. Louis. He is expected to be gone about two weeks.

A. QUAKER.

UNIFORM KILN TEMPERATURES

are assured if your kilns are insulated with SIL-O-CEL brick according to the specifications of our engineers.

A suitable thickness of SIL-O-CEL insulation retains 75% of the heat that is ordinarily wasted through radiation.

SIL-O-CEL PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

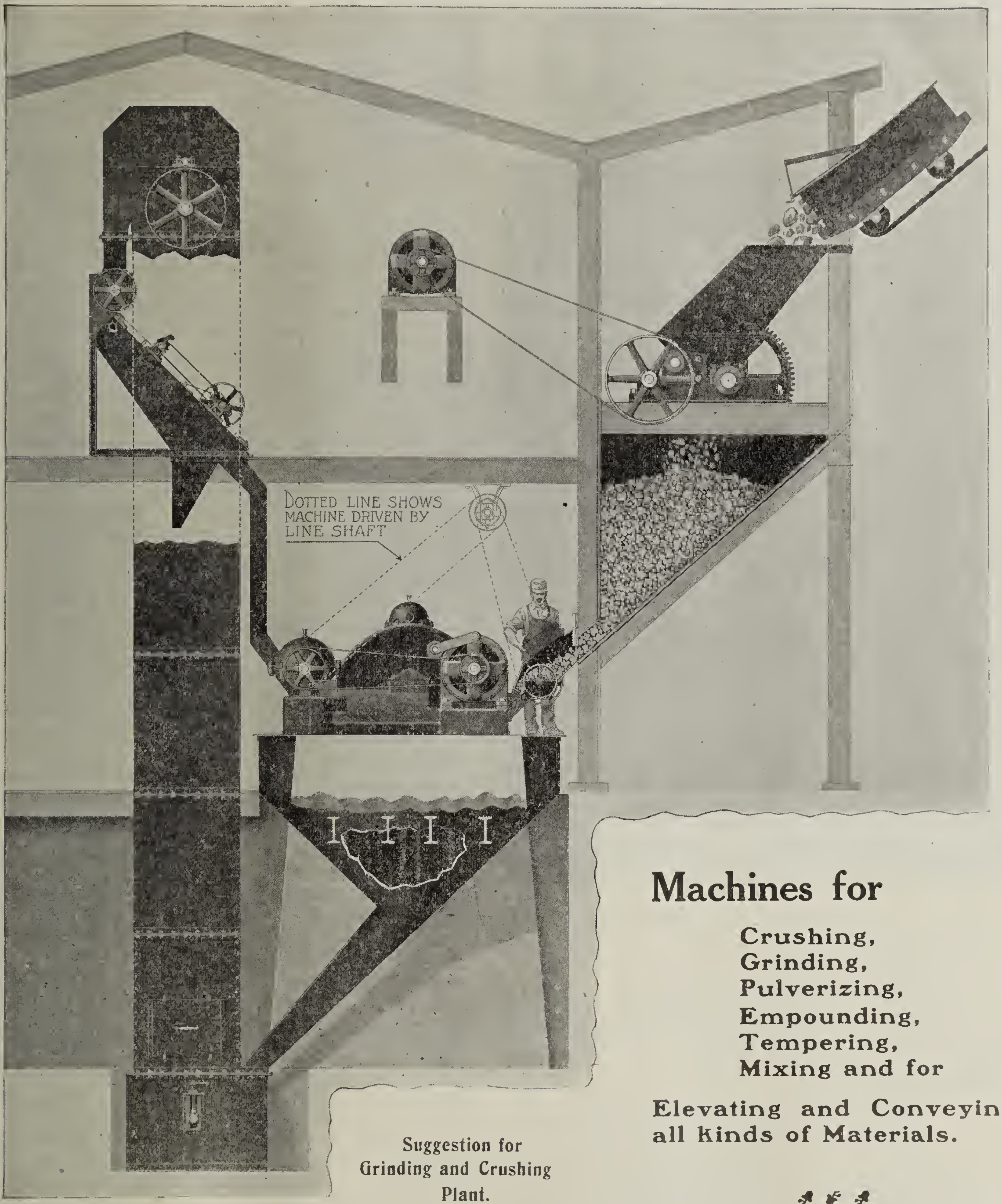
will increase the output of your kilns and your ware will be more uniformly burned with a great reduction in spoilage SIL-O-CEL keeps the heat in the kilns, prevents its dissipation and keeps all portions of the kiln at a uniform temperature.

Our engineering department will advise on the proper application of SIL-O-CEL to your kilns—either old or new.

Bulletin W-71 has the facts that will interest you, write for it to our nearest office.

CELITE PRODUCTS CO.,

NEW YORK, 11 Broadway.
PITTSBURGH, Oliver Building.
CHICAGO, Monadnock Bldg.
LOS ANGELES. Van Nuys Bldg.
SAN FRANCISCO, Monadnock Bldg.



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Crushing,
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Elevating and Conveying
all Kinds of Materials.

* * *

Steam Presses for Making Sewer Pipe, Drain
Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO., General Office and Works, **Wellsville, Ohio**

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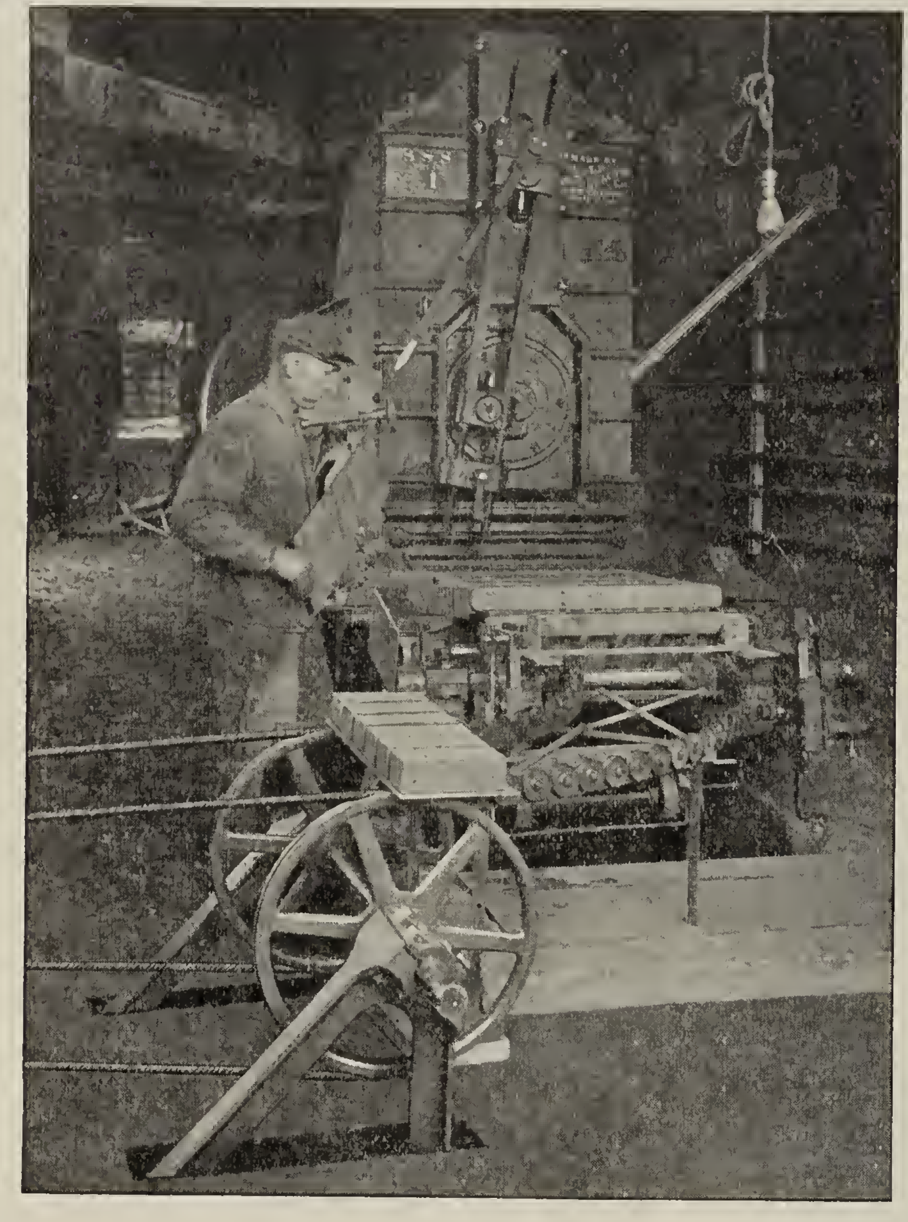
The S. S. S. Special
Automatic Soft
Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS

WHILE BUILDING activities have increased to a marked degree during the past month or two, the class of structures which are going up in San Francisco and the surrounding territory is not of the type which calls for extensive use of brick and clay products. In comparison with other construction materials the demand for brick and ceramic products has not increased to any marked degree, although there is a decided tendency toward a renewal of more normal conditions. Local manufacturers are optimistic rather than otherwise and anticipate a greater amount of business within the next few months. It is the opinion of those in authority, that construction work on industrial buildings calling for extensive use of fire brick, etc., will go ahead within a limited space of time, and when that time comes, the brick and clay manufacturer may count on a resumption of business along more profitable lines.

Many forms of terra cotta are in use in California, and the demand for the products of that particular branch of the industry is on the incline. The evolving type of characteristic California architecture is creating a wider use of terra cotta in both essential and decorative features, and practically every manufacturer has its designer who is able to carry out attractive ideas employing terra cotta or similar products in base relief work, etc. Quantities of the material is also used in tile roofing, a type that is becoming very popular on various public buildings in the towns about the state.

An organization which was formed in the early spring of 1919, for the purpose of meeting and discussing the various problems which arise in the industry, is the Pacific Refractories Manufacturers' Association, with headquarters in San Francisco. The membership of the association include practically every first class fire brick manufacturer on the Pacific slope, and while the organization is yet in the formative period, it is the intention of the members to bring about some sort of affiliation with the national association. One of the principal subjects with which the members have interested themselves is the market evil which has come about at the present time due to overproduction of fire brick.

In every portion of California, the building permits for March and April have increased, in many instances almost doubling the amount of business started during previous months. San Francisco permits are nearing the million mark, while Los Angeles went over the top for both March and April. Conditions in general in the San Jeaquin and Sacramento valleys are splendid and building activities seemed to have commenced in earnest in that part of the state.

S. W. Smith of the United Materials Company of San Francisco is in the southern part of California to look over the field in that territory, as well as enjoy a rest of a few weeks. J. A. Gerlach, superintendent of the Richmond Pressed Brick Works, Richmond, Cal., has been with Mr. Smith on part of the tour. While in Los Angeles they intend visiting the plant of the Los Angeles Pressed Brick Company at Alberhill. This company is identified with the exploitation of clay products to a great extent and has done much to bring the industry into the eyes of the public during the past two years. Plant No. 4 of this organization, producing principally fire brick and tile, was established about two years ago, and has been kept at capacity output, due to the demand for its products during the period of the war. The research plant at Griffin avenue and Alhambra street has been quite a success. The experimental work already done there has resulted in much benefit to the industry in general.

The Claycroft Brick Company of Fresno, Col., has sold a portion of its property in that city to the municipal organization to be used as a burial ground for the dependent poor. The brick company received $2,260 for the lot.

The brick yards at Granada, Cal., have increased production capacity recently, and are employing quite a number of men. The daily output of the factory is over 10,000 bricks per day at the present time. The brick for the new Granada bank building is of local manufacture.

Williams & Finnis, brick manufacturers of Orville, Wash., have secured a contract to furnish 200,000 bricks to be used in erecting an auditorium and garage in that city.

Construction work will begin immediately on the two new buildings of the Standard Oil Company at Richmond, Cal. The building contract has been given to P. J. Walker & Co., of San Francisco. Each unit will be three stories in height with brick and terra cotta used on the exteriors, together with some concrete and frame work. The office building is to cost in the neighborhood of $250,000. Another $175,000 will be used to build the laboratory.

Plans for a five-story brick apartment house to be reared on the corner of Sutter and Mason streets, are being prepared by Joseph Cahen, local architect.

White & Glear, San Francisco, have been awarded the contract for the masonry work for the Memorial Hall at Golden Gate Park. The amount of the job is about $30,000.

A $50,000 Masonic Temple is to be erected soon at Sparks, Nev. It will be located at 12th and B streets, of brick construction with stone facings, three stories in height.

San Francisco, May 4. SUNSET.

A PROMINENT DETROITER GOES ABROAD TO INVESTIGATE INDUSTRIAL CONDITIONS.

MR. JAMES INGLIS, president of the American Blower Company, sailed from New York on May 15th as a member of a commission appointed to confer with European cotton interests on post war conditions in the cotton industry throughout the world and with special reference to the proposed world cotton conference to be held in New Orleans next October.

While connected with the War Industries Board, Mr. Inglis was chairman of a joint committee made up of several governmental departments whose purpose was to secure better baling of cotton and less wasteful methods of handling the cotton crop, and while definite and very satisfactory results were secured during the war, there is much more to be done and as a matter of public interest, Mr. Inglis is continuing his connection with the work, being transferred like most of the other activities of the War Industries Board that were perpetuated, to the Department of Commerce. Mr. Inglis will also visit Belfast, Ireland, to confer with his associate in the blower business, Mr. Davidson, of the Sirocco Engineering Works.

WHY SHOULD WE DRAIN?

The first reason and the one of most importance to the general farmer is, because it pays. Instances can be multiplied in which an annual profit of twenty-five percent has been realized on the money invested in underdrainage. Lands which yield an uncertain crop of twenty bushels of corn or oats per acre readily give a certain yield of fifty or sixty bushels per acre after drainage. Waste land producing nothing of worth, being rather a nuisance upon the farm, when improved by drainage becomes fruitful, a source of profit to the owner, and a field of beauty to the eye of the general observer. That farmers are fast recognizing the money value of drainage is not surprising since the work is so permanent and lucrative as to commend itself to every observing man.

"On-the-Job" GANDY

THE SERVICE BELT

A brain and brawn combination that makes things hum—that's me, "On-the-Job" GANDY, the original stitched cotton duck belt.

I'm made to give, inch for inch, the kind of service that only first-class materials, constructive skill and the GANDY secret process of seasoning can put into a belt—

And the engineering department back of me guarantees perfect adjustability to every requirement of belt-users—and that I give to each "top notch" service.

Are you getting that from your present equipment?

If not, come to us with your power and conveyor problems. We can end them with GANDY belting—and we're ready to do it NOW!

Look for the Green Edge and *Gandy* Trademark.

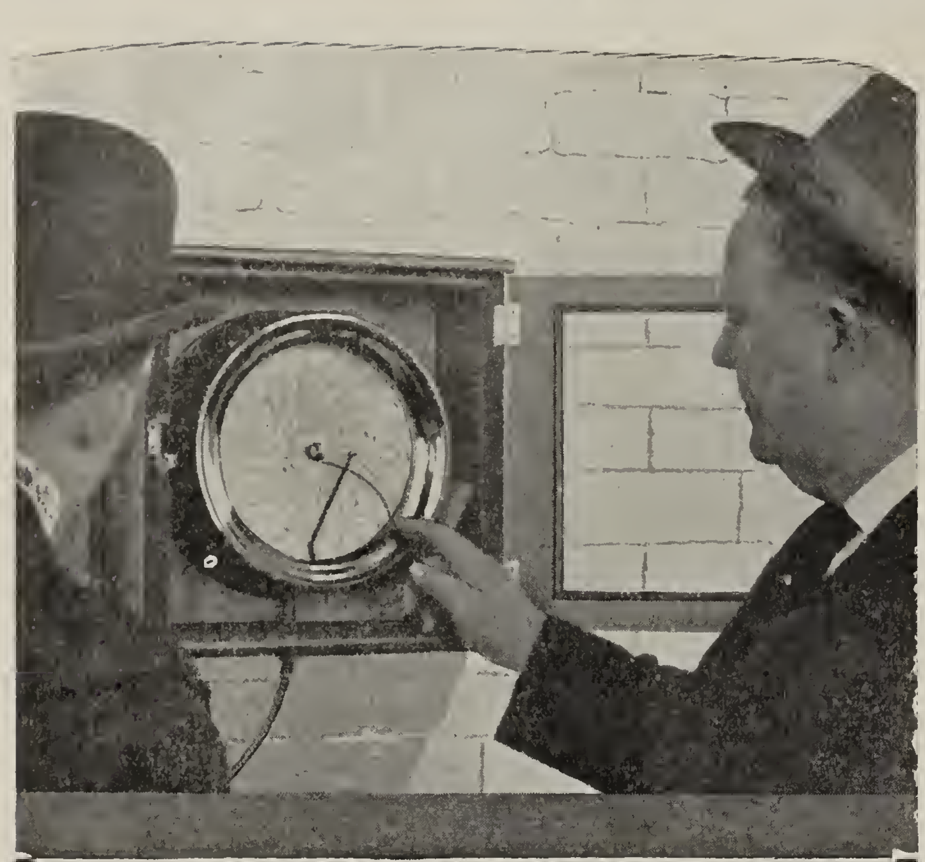
Yours for service

"On-the-Job" *Gandy*

Service Manager.

THE GANDY BELTING COMPANY
749 West Pratt Street BALTIMORE, MD.
New York Branch, 36 Warren St.

GANDY BELT
"Stitched" Cotton Duck



"With this Instrument I Cut a 30% Dryer Loss to Almost Nothing"

A big happy-go-lucky Westerner came breezing into my office two days ago and opened up with "Say, maybe the first 24 hours I used your Recording Thermometer on my dryer didn't open my eyes! I have always used Pyrometers because I felt that temperatures were vital to make brick plants pay today. I sort of forgot about the drying end of it, and yet it's logical to suppose that if I run brick through my dryers at 150° F. one day and 350° F. the next, that's going to effect my burns.

"Well, that Thermometer showed me that my temperatures were swinging from maximum to minimum and nobody knew the difference. Just as soon as I got it, however, my men could watch the temperature, shut the blower off or throw it on, and I had a twenty-four hour record to show me what was doing. Believe me, after this my drying was done pretty near right, and the instrument has sure been worth its cost since the first day that bulb was stuck in the heat."

How about your dryer? It's an inexpensive equipment that every brick plant ought to have and a whole lot of them have awakened to the fact that a Brown Recording Thermometer is the most reliable and dependable that they can put their hands on. Let us send you full information and our good Westerner will add a word of commendation if you want to write him. We'll furnish the address.

Drop a line to us today.

The Brown Instrument Co., Philadelphia.
World's Largest Pyrometer Makers
New York, Pittsburgh, Detroit, Chicago, St. Louis

BROWN
Recording
Thermometers

TILE AND BRICK MACHINERY EQUIPMENT WANTED IN INDIA.

Editor The Clay-Worker:

We contemplate the erection of a plant here at Kallai, Malabar, India, for the manufacture of roofing tiles, floor tiles, common building brick, hollow building tile, fire brick and other clay products. We want to make solid building brick, measuring 9x4½x3 inches. Would like to receive catalogues from machinery manufacturers who can supply the necessary equipment. Also information in regard to kilns, and drying apparatus.

Yours faithfully,
DUTT'S SAW MILLS.

WESTINGHOUSE NEW ANNUAL CATALOGUE.

The Westinghouse Electric & Mfg. Co., of East Pittsburgh, Pa., has issued a complete catalogue in which all of their electrical supplies are listed. In compiling the catalogue every effort was exercised to make it of the greatest convenience to purchasers.

The catalogue is made up of 1,264 pages of description pertaining to the products of the company and a score of other pages contain a complete cross index, an index to style numbers, and a table of "Approximate Cost Multipliers," which enables one to figure the approximate cost of all supplies listed.

Although the book is called a catalogue, it contains a vast amount of information of a technical and engineering nature. Practical suggestions for the use of many kinds of apparatus for the transmission and utilization of electric power are given.

It is planned to issue this catalogue annually. The publication of this catalogue is quite noteworthy as it is the first book of such a nature published by an electrical concern having the wide diversity of products sold by the Westinghouse Company.

"To Increase the Efficiency of Labor, to Increase Production so that Prices May Be Lowered."

Business, from ditch-digging to banking, needs building as a stimulus at this time. Building investments, if made with reasonable prudence, are enhanced in value with the increase of population.

A universal building program means more to the United States right NOW than at any time in its history. It means individual efficiency for labor; it means increased production in all correlated industries; it means increased material demands until production reaches the quantity production level necessary for reducing unit costs; eventually, it means lower prices. This country is the soundest, healthiest, wealthiest in the world. If you need a home or a building, do not hesitate a day longer in going to work on it.

Prices will not be lower until production is increased; costs will not go down until quantity production permits us to avail ourselves of the economy of the maximum efficiency of labor and machinery.

To increase labor efficiency, to increase production, to lower prices—BUILD NOW.

F. T. Miller, Director of the Division of Public Works and Construction Development, Department of Labor, Washington, D. C., is authority for the statement that the increased cost of building material is only about half that of other commodities. This sounds like there is no room for the price of building material to come down much.

THE CLAY-WORKER

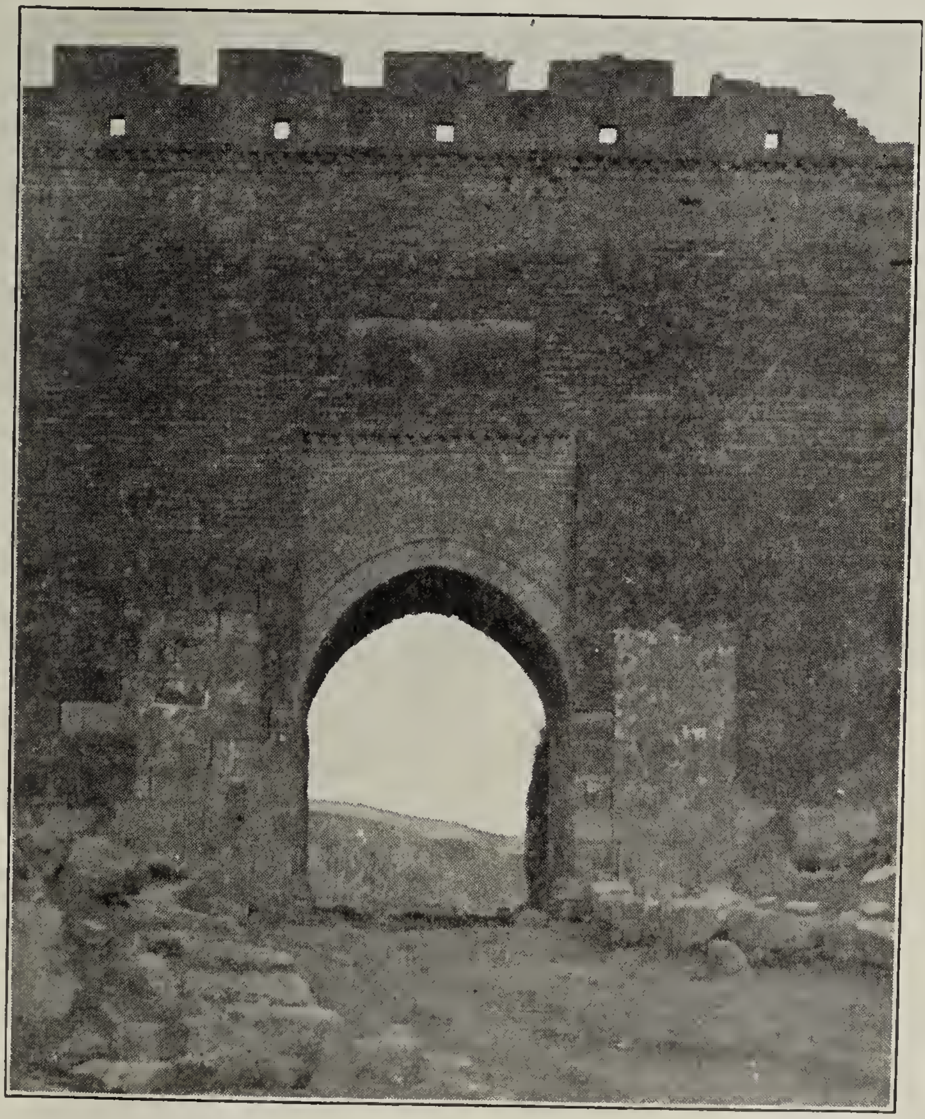
THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXI. INDIANAPOLIS, JUNE, 1919. No. 7.

BRICK OF AGES: The Re-use of Brick from the Ancient Wall of China Demonstrates Anew the Indestructible Character of Common Building Brick, the Best Building Material of all Ages.

FOR generations we have sung of the "Rock of Ages," now we have the story of "The Brick of Ages" and illustrate it with views of the great wall of China, from which brick made thousands of years ago are now being taken and reused in the construction of buildings for missions and other public and private structures. It is a story from far away China which tells of the passing of a wall of defense, which has withstood the ravages of time for many centuries, to more useful purposes, the building of homes and other edifices of a modern character.

Through the courtesy of the Publicity Department of the Missionary Centenary of the Methodist Episcopal Church, we have been provided with photos and a brief descriptive sketch of the use of part of the great wall of China for the building of a mission school. A section of the historic wall which has been given to the mission is shown as being transferred to the site of the new building, the work being done by the native labor of China. This is about the only way many of them are able to make any contribution to the missionary and educational work being carried on by the church people. When a church or school is to be built men and boys quit their work in the rice fields and the women folks lay aside their household tasks to carry material and render what help they can in the building. And, as will be observed, they carry brick balanced upon the head in baskets and not on the shoulder with our regulation hod.



A Close-Up of a Section of the Great Brick Wall of China at Nankan.

Vocational training is made a part of the work of the mission schools there, some being given training in brick-laying, others in carpentry, furniture making, etc., so that they may not only render assistance in the erection of schools, hospitals, orphanages and churches, but may also thereby be equipped to take a bigger place in the life and affairs of the future in their home surroundings.

And now, as to the great wall, and the brick of ages. The great wall of China has long been classed among the wonders of the world, and yet there is less historical data of a specific and detailed nature about it than any of the other wonders which class with it. Writers marvel at it, and moralize over the question of why it was constructed, and some times run on at great length, and yet when they are through we have been told practically nothing of the size of the brick, how they were made, and burned, and how they have stood the test of time, except that they are there after the passing of ages. That great quantities of them are still sound and good for re-use and centuries of service to come, we have pictorial evidence in the illustrations sent us. Also these give a better general idea of the brick themselves than is to be found in the general historical matter pertaining the great wall.

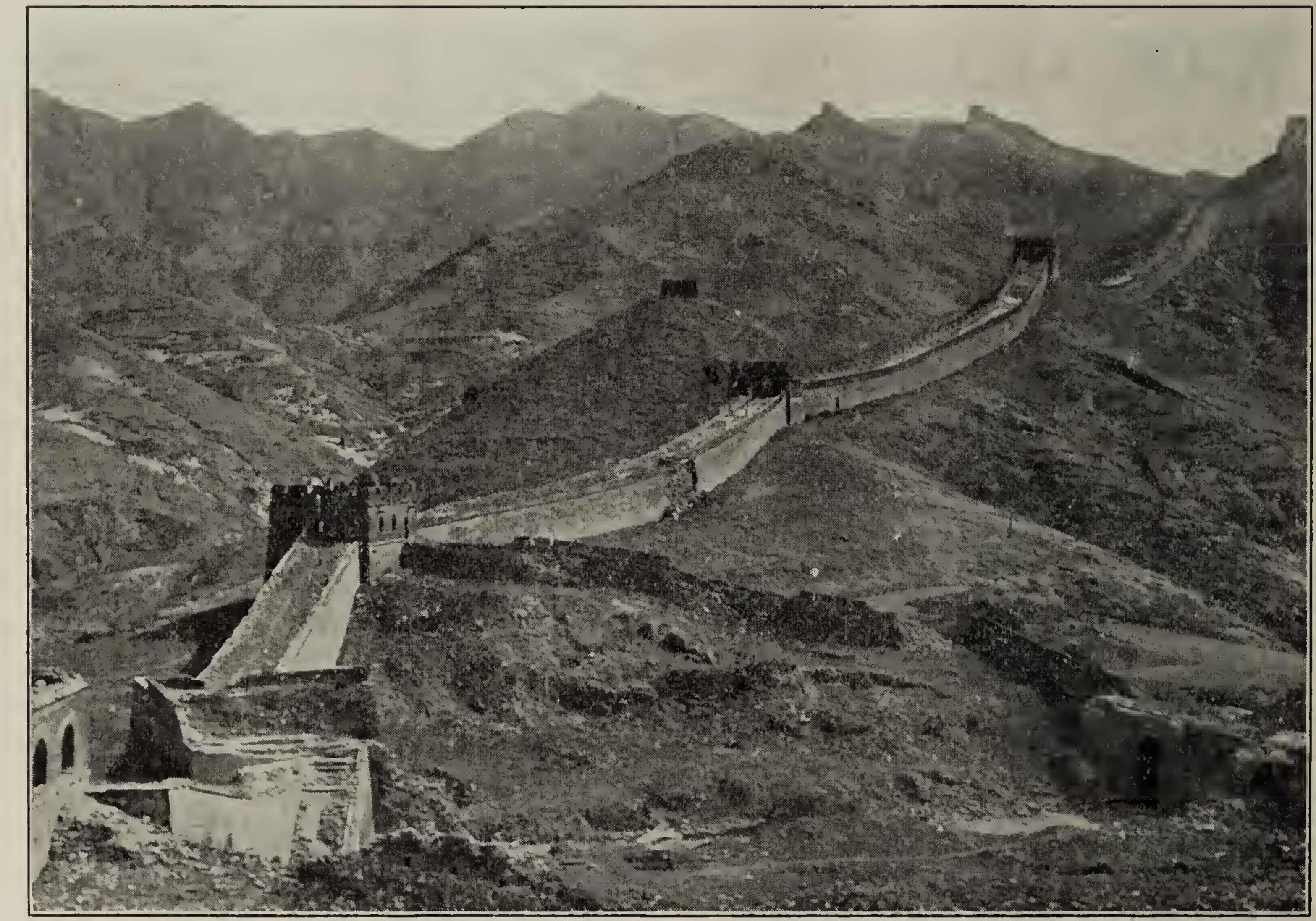
Two things that historical data is in pretty general agreement upon are, the antiquity of the undertaking, and the stupendous magnitude of it. The wall is located in the main along the border between old China proper and the province of Mongolia. It follows a serpentine course over mountains and through valleys from Suchau in Kiang-su eastward to Shainhaik Wan on the Gulf of Pi-Chi-li, with an extension northward to the Sungari River. It is approximately 1,500 miles long, 20 feet high, and from 25 to 40 feet wide at the base. The top seems to range in width from 12 to 20 feet, and about every 100 yards a tower-like structure extends upward something like 20 feet above the wall, or 40 feet from the ground to the top. The top as a rule contains a roadway paved with square brick set in lime mortar, which would seem to make this the original brick-paved roadway, with a parapet extension on each side. Now, granting that the foundation and some parts of the wall were of stone, and that the core or inner filling was stone and dirt, an effort to determine the possible number of brick used in its construction becomes staggering. Also there enters the mental picture a striking element of wonder as to how many men were required to make and burn all these brick, transport them to the job and lay them up in the wall, with no power or labor-saving devices, but only very primitive tools, and yet accomplish the job within the lifetime of a ruler who had already attained mature age when the idea was conceived and the job started.

In the matter of the quantity of material used and the actual work involved the construction of the great pyramids of Egypt almost pale into insignificance beside this. The only undertaking comparable with it in the amount of work involved is the Panama Canal, and there we had the assistance of railroads, great steam shovels and other labor-saving devices invented by man since the coming into wide use of mechanical power. Surely that was a great era in brick making that overshadows the days of Jewish slavery in the brick yards of Egypt of which we have read and heard so much.

People have written more about the pyramids and marveled more over them, mainly because there is an element of mystery about how they were erected, while in the case of the great wall one can readily understand how it was done. And it has ever been the way with mankind to marvel most over that which they find difficult to understand, while giving but little thought to more important things which did not mystify.

There is nothing much of tradition about the great wall of China, though the greatness of the undertaking would imply that there should be, and historical data is somewhat contradictory as to the time of construction, the manner, and the materials used. This seems to be due in a great measure to different writers having visited different sections of the wall, which vary somewhat both in the time and manner of construction. What one gathers from a study of the records is that the big job started during the third century before Christ. One authority says that this big job was finished B. C. 211. Others say that work of construction and reconstruction was carried on as late as the fifteenth and sixteenth centuries after Christ. If they are all correct there is brick in the great wall of China varying in age all the way from 400 to 2,500 years old, which would make even the youngest old enough to come in the class of ages.

In general reference is made to the great wall being built



The Great Brick Wall of China, Winding over Hill and Dale for More than 1,000 Miles, Erected Centuries Ago.

during the Ming dynasty as a protection against invasion from barbaric people. Various names are assigned to the particular emperor who was moved to this stupendous undertaking, probably because of the difficulties of translating Chinese names and expressions. The one appealing bit of tradition which the writer has been able to find is this:

That in the 32nd year of the Ch'in dynasty Emperor Ch'in Shih was warned by an official, named Lu, who in truth proved to be a prophet, that the cause of the overthrow of China would be the Hu. As bearing out this prophesy, it is said that Hu Hui was eventually the actual overthrower of the dynasty. At that time, however, a different interpretation was put upon the warning or prophesy. It was taken to mean that the Huns, or Mongolians would make war upon the country. So Emperor Ch' niShih, took the initiative, gathered an army of 300,000 soldiers and drove his enemies back out of quite a lot of the bordering territory. Then he got busy and built the great wall. It seems that there were already quite a number of walled fortifications that had been built by various Princes in the territory, a reference which makes one think of the Fuedal Castles, walls and moats of Europe. These evidently gave him his big idea, and they also appear to have furnished some of the connecting links in the great wall that was finally evolved. If so they would add to the antiquity of the wall in spots. The completion of the great wall, according to the tradition, so overawed the Huns that they afterward held the Emperor in great fear and respect.

Dr. Hartman of the Methodist Centenary Commission and a Group of Native Students, on a Hike to the Great Wall of China.

There are evidently some remarkable feats of primitive construction in connection with this wall, for it wound up and down hills and mountains, some towering 5,000 feet high, and had to cross valleys in which were creeks and rivers. These are said to have been bridged with arches, which must have been well constructed indeed to have stood the wear of water as well as the ravages of time through centuries.

It should not only be a matter of great interest to the clay-workers of the country to read about and see pictures of brick in this great wall which have stood for ages being taken out and used again, but there is something co-incidently impressive about it coming at this time and the uses to which it is being put. There is in the Chinese tradition pertaining to this wall mention of the "Hun" as an enemy to their civilization, an enemy which they first drove back, and then erected a wall to hold back, while today we have just finished a war with the "Hun" enemies of modern civilation, and the great statesmen of the world are striving to erect a figurative wall of public sentiment and agreement to prevent war and the invasion or an unguarded people by barbariclly inclined enemies.

UNCLE SAM ENCOURAGES BUILDERS.

There seems to be more or less confusion or misunderstanding about the hesitancy of banks to finance building operations which at times leads to the idea that the Treasury Department at Washington tends to discourage it. The fact of the matter is practically every department at Washington is very anxious to see building go forward, and where there is a hesitancy among banks to loan money for such work it is generally a question of values now and in the future—if the loan will be safe. This means that where the cost is unusually high the builder must have a somewhat larger stake to start with.

BUILDING DEFICIENCY IN THE NORTH CENTRAL STATES.

AS A RESULT OF THE WAR there is a building deficiency in the north central states in the sum of $1,511,200,000, according to an estimate just made public by the Information and Education Service of the U. S. Department of Labor. A recent survey of building conditions in the North Atlantic States, made by the same department, placed the deficiency in that district at $1,200,000,000. The north central states survey shows deficiencies in the states as indicated below:

Ohio	$ 235,000,000
Indiana	44,500,000
Illinois	317,000,000
Michigan	130,000,000
Wisconsin	131,000,000
Minnesota	273,000,000
Iowa	18,000,000
Missouri	55,000,000
Nebraska	52,700,000
North Dakota	42,000,000
South Dakota	153,000,000
Kansas	60,000,000
Total	$1,511,200,000

This estimate was arrived at by a survey of the building permits issued in the principal cities in each state in pre-war years and during the war. The total real estate valuation of these cities was compared with the total real estate valuation of the state in which they were located. By applying the accepted theory that the building permits of the cities will bear the same ratio to the building permits of the entire state as the real estate valuations of the cities bear to the real estate valuations of the state, the building deficiency for h latter was estimated with reasonable exactness.

For Ohio the cities of Canton, Cleveland, Cincinnati, Columbus and Toledo were taken as the basis of the estimate. By comparing pre-war and war years' building permit statistics the following building deficiencies were disclosed: Canton, $3,575,568; Cleveland, $44,929,956; Cincinnati, $19,320,062; Columbus, $9,794,704; Toledo, $4,106,537. The total real estate valuation of the five cities named is $1,600,000,000, while that of the entire state of Ohio is $4,600,000,000. The building deficiency in the five cities totals $81,726,827, and on the ratio of real estate valuations the building deficiency for the entire state is estimated at $235,000,000.

In Illinois the building deficiencies established by a survey of building permits in pre-war and war years were: Chicago, $196,322,076; Danville, $699,313; East St. Louis, $773,148; Peoria, $2,648,064, and Springfield, $3,077,340; the total for the five cities being $205,519,941. These cities have a total real estate valuation of about $1,100,000,000, while that of the entire state is about $1,700,000,000. On this ratio the building deficiency for the entire state of Illinois is estimated at a little more than $317,000,000.

Grand Rapids, Detroit and Saginaw were made the basis of the study in Michigan. They showed, on a basis of building permits issued in pre-war and war years, the following deficiencies in building: Detroit, $56,811,467; Grand Rapids, $5,739,595, and Saginaw, $1,051,068; a total of $63,602,130. These three cities have a real estate valuation a little less than one-half that of the entire state. Assuming that building deficiencies are in the same proportion as the population the deficiency for the state of Michigan is $130,000,000.

Milwaukee was made the basis of the study in Wisconsin. The difference between the sum of the values of building permits issued in 1915 and 1916, and that of 1917 and 1918, is $20,612,604, which may be considered as the deficiency in building in this city to be made up in order to bring it to its normal development. The real estate valuation of Milwaukee is $425,000,000; that of the entire state of Wisconsin is $2,703,000,000. Assuming that the building deficiencies are in the same ratio as the real estate valuation, the deficiency for the state is $131,000,000.

Duluth, Minneapolis and St. Paul formed the basis for the estimate on the building deficiency in Minnesota. Duluth shows a building deficiency of $10,571,644; Minneapolis, $41,018,679, and St. Paul, $15,298,434, the total being $66,888,757. The total real estate valuation for the three cities is $313,000,000 and that of the state is $1,280,000,000. Assuming that the deficiencies are in the same ratio as the real estate valuations, the building deficiency for the state is estimated at $273,000,000.

In Iowa, Cedar Rapids shows a building deficiency of $2,337,434, Davenport $924,958, Dubuque $888,104, Sioux City $682,007; total $4,832,503. Assuming that the deficiency for the four cities and for the state are in the same ratio as their respective real estate valuations, the building deficiency in Iowa amounts to $18,000,000.

Kansas City shows a building deficiency of $14,467,324 and St. Louis $20,248,971, a total of $34,716,295. The total real estate valuation of these two cities is $803,000,000, and that of the state of Missouri is $1,280,000,000. Assuming that the deficiencies in building are in the same ratio as the real estate valuations, the deficiency for the state of Missouri is more than $55,000,000.

Topeka, with a building deficiency of $1,515,253, was made the basis of the estimate for the state of Kansas, the state deficiency in building being estimated at $60,000,000.

Lincoln, with a building deficiency of $2,965,578, and Omaha, where the deficiency amounts to $5,652,672, were taken as the basis of computation for the state of Nebraska, where the state total deficiency is $52,700,000.

In each of these states building interests and real estate boards report a shortage of residential property. Ohio and Illinois needs, also, apartment houses. There is a marked shortage in school buildings in all the states and most of the cities mentioned report a shortage of store and business quarters. A deficiency in workmen's dwellings is reported from Chicago, Detroit, Cleveland, Indianapolis, Cincinnati and Milwaukee.

This deficiency must be made up in addition to meeting the normal current needs in 1919. In view of this fact the Department of Labor's statement that the current year is likely to prove one of unprecedented building activity seems to be fully justified. The latest reports on building permits and contracts let indicate that building construction work the country over rapidly is getting back to pre-war figures. The new onrmal, however, will be far ahead of pre-war figures.

The rapidity with which building and construction work is reviving indicates very clearly that building interests are convinced there is to be no material reduction in construction costs for several years, if at all. This conclusion is inescapable in view of the studies of market and labor conditions recently made by economists in the Information and Education Service of the U. S. Department of Labor.

The hydrated lime folks seem to think an ideal mortar is one made of equal parts by bulk of Portland cement and hydrated lime, with three times as much sand as the combined bulk of cement and lime. This combination is described as Mortar No. 5 in a special bulletin issued by the Hydrated Lime Bureau of the National Lime Manufacturers' Association, Arrott Building, Pittsburgh, Pa.

BUILD NOW!

"Own a Home for Your Children's Sake."

AMBITIONS MAY be realized in your children if you have the home environment which transmits to them the ambition. The basic need is a home and the sense of shelter and security which goes with ownership.

If there were no other arguments worth while men would be more than justified in building and owning their own homes for the children's sake.

Like father, like son! The next generation will not be a home-owning one if the present generation doesn't show the benefits of home owning and inculcate the home-owning ambition.

If you are determined that John and Mary shall have a fair show to make good on your ambitions for them, get them tucked away in a good home—a home that is all yours, and theirs. It will become to them the very hub of the universe; a very sacred spring of inspiration and a very tangible example of the prudence of thrift. If you would do your part toward making your children's future secure in a nation of home owners—BUILD NOW.

"More Americans Should Own Their Own Homes."

Somewhere in the heart of every man is the desire to be INDEPENDENT. Independence is the measure of one's standing in the community.

One of the largest employers of labor in the country ordered a canvass of his factories to determine what percentage of his employes owned their own homes. At the same time he urged all employes in the establishment to become home owners or home buyers.

Sound logic prompted this action. The responsible man is the valuable employe. The HOME OWNER has a deeper sense of civic pride. He is established; he is responsible; he is interested in everything that tends toward the peace and security and up building of the community.

The example set by one manufacturer will be followed by others. It will daily become more requisite to a man's securing responsible employment that he Owns His Own Home.

There is little excuse for a man not owning his own home. The great Liberty Loans have instilled into the American people lessons of thrift that will endure through the coming days of peace. Every man can and should own his own home.

There is no appeal from the man who seeks a position that is treated so lightly, by private and public employer alike, as the appeal which comes from the man who has everything to gain and nothing to lose.

The INDEPENDENT MAN always Owns His Own Home —BUILD YOURS NOW.

Production Depends on Construction.

Cutting down production, producing less food, less clothing, less fuel, never has and never will reduce prices. Increase production is the answer to the question of how we can reduce living costs.

We must have production if we are to have lower living costs. In modern industry production is stimulated by construction. Building is a basic industry. If you build a home you make business for more than a hundred correlated and contributing industries. Each building erected sends its wave of demand through the industrial organization, from the ditch diggers to the bank presidents and back, and, by way of pay envelopes, to the ditch digger again.

An immediate resumption of building activities will do more than any one thing to stimulate general business and accelerate the transition of industry from war demobilization to the peace normal.

Construction stimulates production—it creates the demand—and production must increase until it reaches the volume production necessary to decrease unit costs before prices are lower.

Assist business and serve your own and the Nation's interests—BUILD NOW.

"BRICK AND TILE 2 PER CENT."

In connection with the efforts to stimulate building operations the U. S. Department of Labor has gotten out and widely circulated a book of "Suggestion for Own-Your-Own-Home Campaigns." On page 11 in this book appears for guidance in raising funds for such campaigns, a tabulation of the relative values of different materials and work entering into the construction, say of a home costing $5,000 to build, which reads as follows:

"An an illustration real estate would approximate 15 per cent., pumbing 10 per cent., heating 15 per cent., lumber 20 per cent., interior finish and millwork 15 per cent., architect's work, 5 per cent., brick and tile 2 per cent., cement 2 per cent., hardware, 3 per cent., electric fixtures 2 per cent., painting (interior and exterior), decoration and wall paper 5 per cent., furniture and furnishings 6 per cent. * * *"

If this is a reasonable estimate brick has a lot of room to grow in home building operations, and whether the estimate is reasoinable or not, it is another reminder that the clayworkers of the country need to put more speed and power into boosting of their products. Brick and tile should be in a leading position in the materials of construction instead of bringing up the rear of the procession.

SEVEN MILLION WORKERS NEED TRAINING.

UPWARDS of 7,000,000 workers in this country have not had opportunity to become properly trained in their tasks, according to the U. S. Training Service, of the Department of Labor, the function of which is to promote industrial training in manufacturing plants in this country. The system of training which the Training Service advocates is one of upgrading workers by extending their knowledge of processes and increasing their skill. It devotes itself to raisin the average output of poor and mediocre and fitting promising individuals for promotion.

These and many other facts equally pertinent to reconstruction problems, are set forth in a vest pocket bulletin entitled "Seven Million Candidates for Training" issued by the Training Service. This pamphlet shows that part-time and continuation training, splendid as it is, does not reach the great majority of the 7,000,000 workers referred to. They are already at their jobs and because of economic necessity cannot sacrifice time or wages to attend continuation classes. To meet this situation training departments in the shops and factories, maintained at the employers' expense, are urged as the most practical remedy. The publication referred to maintains that the training department idea has already demonstrated its great value for peace-time industry, and that the number of firms introducing training in their plants is growing week by week.

The task of the government's training service is to provide interested manufacturers with expert advice in planning their training departments and to supply them with carefully prepared training courses. The bulletin referred to above and others on this subject can be had free of charge by addressing the U. S. Training Service, care of the Department of Labor at Washington.

THE DESIGNING OF FACTORY LAYOUTS FOR THE CLAY INDUSTRIES.*

By T. W. Garve, Columbus, Ohio.

TECHNICAL DESIGNING is an art as well as a science. Any design or construction which has to perform a certain duty during its time of usefulness is a creation, but only worthy of that name if the most effective solution has been found, and the most effective is usually the simplest. Effectiveness, simplicity and ornateness are fundamentals for the factory designer and their importance is in the order named.

The designing of public buildings and dwellings has always been the work of the architect, but when it came to the design and construction of skyscrapers, with the abundant use of steel and reinforced concrete and power equipment, the work had to be subdivided. The architect first works out the plan, then the engineer designs the frame, and finally the artist embellishes the structure. In designing factories the engineer's work is of chief importance.

Housing is the sole purpose of the building, and the engineer's work, though important, is secondary. He first places the machinery in every detail and then adds the structure to support and house it. The archetect and artist are not essential, but in many instances it is to be regretted that the latter is not consulted.

The architect's work is decidedly varied but his problem is a single one, namely, housing. The engineer's work is very different; he is dealing with manufacturing processes and must be an expert in each process for which he designs a factory, or he must call to his aid those who are experts to work out the details of each problem, leaving for him the general mechanical features and final assembly of the factory as a whole.

A machine is usually built first as a trial, then corrected and improved upon, and often completely remodeled and rebuilt before it is turned out in a large number as a type. A factory, however, cannot be corrected so easily. Buildings cannot be shifted nor can foundations be torn out; there is, besides, too much money invested in a manufacturing plant to permit of experimenting afterwards; it has to be right in the first place. How many clayworking plants have been right in the first place?

Of course, a clayworking plant is not a shoe factory or an automobile factory; there are no two clayworking plants alike—hence the very essential requirement of the designing engineer is to be familiar with the branches of clayworking and to be broad enough to study the proposition in question from every angle.

We cannot do better than quote from Day's "Industrial Plants,"[1] as follows:

"It will be evident that during the limited period needed for the designing of a new plant, almost every branch of engineering may be called into play. Those for whom the new plant is being built must be counted upon to dictate primary requirements, but in the majority of cases their experience should be supplemented by the broader knowledge of others.

"For the need of a better term 'industrial engineering' has been quite generally adopted as the name for the professional service redered by indpendent engineers engaged upon such work.

"The indnstrial engineer co-ordinates the mass of technical notes turned in to him by the various engineers engaged upon his work, and on account of his intimate acquaintance with his client's needs, aims, and resources, he is able to consider the conclusions presented from a broad standpoint that is wholly unknown to the individual workers. He is to remember constantly that it is the final result that measures the usefulness of his efforts, and that it is absolutely immaterial from what source a given suggestion may come. As a general proposition, complete plans and specifications, covering all features entering into building structures, should be prepared prior to soliciting bids; but this work must, of course, be done by men thoroughly conversant with all available standards and the usual practices adopted in shops."

Any clayworking proposition should be investigated very thoroughly before a preliminary plant layout is studied and worked out. The kind and quantity of ware to be made, the physical conditions of the clay, and local conditions and requirements will determine the kind of machinery to be used and the type of dryer and type of kilns to be adopted. There is a great variety of machinery of different types and makes on the market and it is often difficult to select the equipment best suited. The location of the plant, market conditions, quantity of clay and the capital available will be factors in determining the kind of building materials to be used (whether brick, steel, lumber, concrete, kind of roofing, etc.).

We have heard much in these days about conservation of fuel and to this end kiln and boiler furnaces and methods of firing have been improved. How much fuel, however, is daily being wasted in a factory where the routing is not the short-

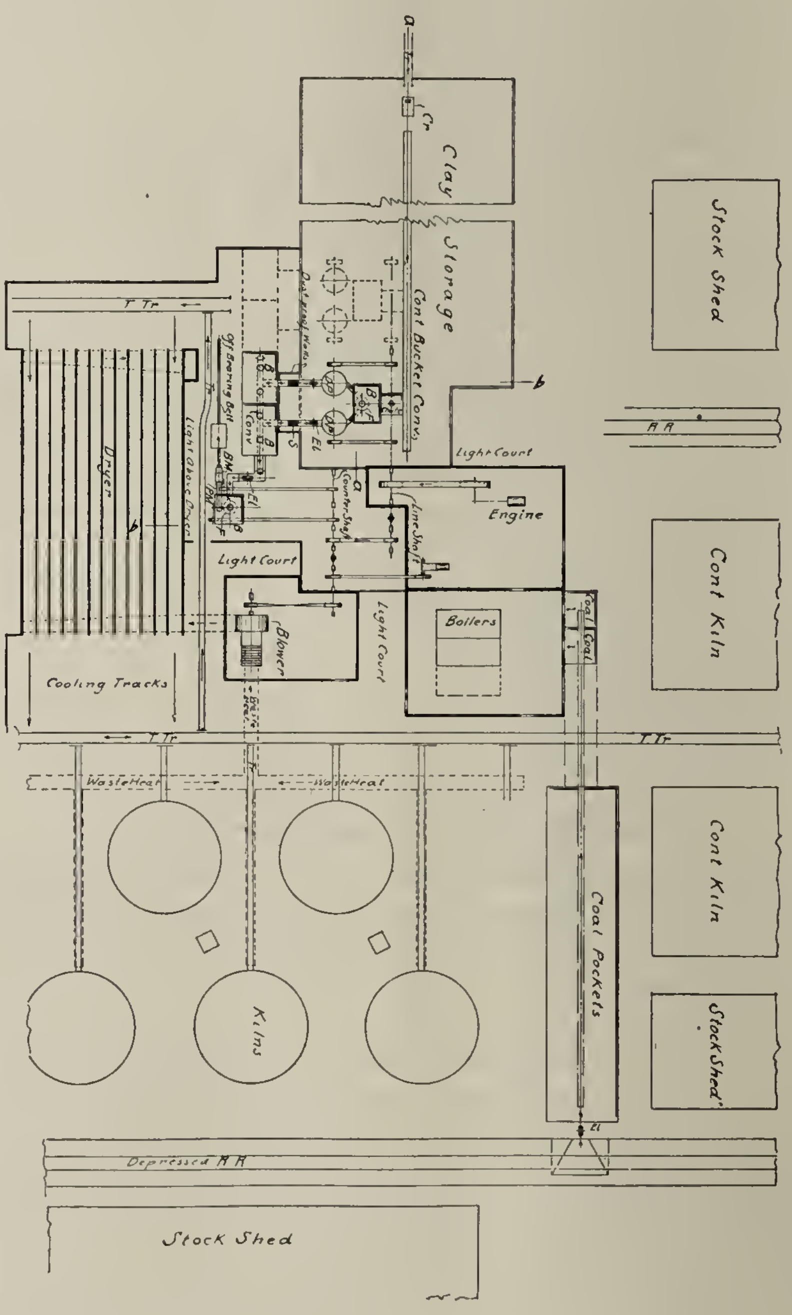


FIG. 1.

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*Reprinted by permission from Journal of American Ceramic Society, No. 3, Vol. 2.

[1] "Industrial Plants," by Charles Day, The Engineering Magazine, New York, N. Y.

est possible, or where conveyors are too long, elevators too high, and where power transmitting appliances of relatively low efficiency are abundantly in evidence. We quote Lovejoy from "Economies in Brickyard Construction and Operation" as follows:

"From the power house we go into the factory and find short drives with belts drawn up by stretchers, unnecessary countershafting, and both line and countershafting out of line, crooked and badly wobbling, top pulls on belts and unnecessarily crossed belts—the list is too long to enumerate, but everything dragging and eating up boiler fuel."

In this paper we have attempted to point out some essential, general features in clayworking factories without, however taking up variations in each type, the discussion of which would be endless.

Clay Haulage.

The distance the clay is to be hauled should be as short as possible. Whether the plant is to be built close to town or close to mine or clay bank is often a local consideration and cannot be stated definitely one way or the other; we would have to know the situation of the market, the railroad, and other local peculiarities such as fuel, labor, water, housing, transportation, etc.

If a mine shaft is used close to the plant, the clay or shale should be delivered from it at the highest point of the factory in order to eliminate further elevating as far as possible. Gravity haul from the bank is recommendable if the site of the plant and the elevation of the bank will permit. Most often the clay is to be elevated and a winding drum or steam hoist is used at the highest point of the incline. Since clay dump cars are made of the bottom, side and end dump types, there is much latitude in conveniently arranging the clay storage and clay feeder or any other preparing machine to be fed. Any incline should be steep enough to allow the empty cars to return with dragging cable. If the clay or shale is to be hauled in by wagons or railroad cars, it may be advisable to build up a slight incline, by earth filling or by trestle, to avoid a great depth below ground for clay hoppers, feeders, or elevator tail ends.

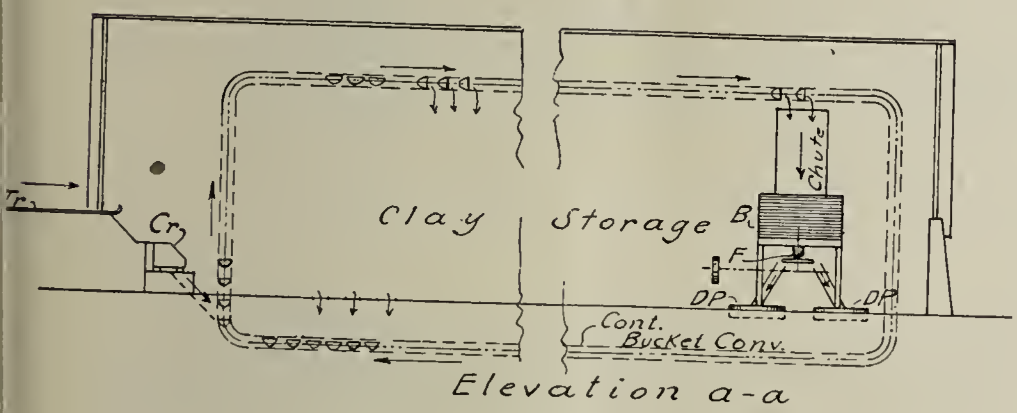

FIG. 1a.

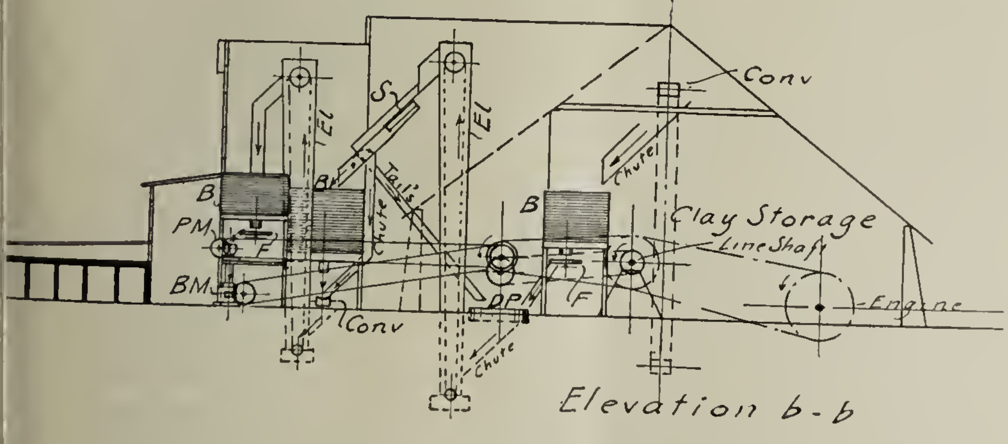

FIG. 1b.

Clay Storage.

Raw clay is stored for the purpose of sufficient supply during winter or during bad weather; to help over any breakdown at the mine or bank; to secure a better and more uniform mixture; and to improve the working condition of the clay and quality of the ware.

Clay storage equipment should be an independent feature of the plant that can be in use continuously or intermittently as conditions require so that all unnecessary rehandling is avoided. It should face the clay bank and later extension should be possible.

Ground clay storage within the factory is an essential feature to insure continuity so that the consequences of a breakdown, or any irregularity in supply of clay, will be checked at the bin and not be felt throughout the succeeding manufacturing processes of the plant.

Machinery Building.

One end of this building, where the clay enters, should be in touch with the clay storage building and the other end close to the dryer (or kilns) . The shortest possible routing and as automatic as is practical is to be devised avoiding, however, a too elaborate system of conveying machinery. If it can be worked out it is best to do all the elevating in the first place and then to let the clay pass from machine to machine by gravity. If two or more sets of preparing machines are used, provision should be made for a certain elasticity in the arrangement by which an exchange of duty can be accomplished This applies especially to large plants which turn out two or more kinds of ware and where a corresponding number of types of preparing machinery is to be installed. Here the grinding or preparing outfit for one kind of ware may be called upon to do duty for the other kind of ware and vice versa. Other demands may arise later during the manufacture and developments of the product and there are often quite a number of eventualities which have to be taken into consideration in designing the machinery layout and building.

If electric motors are employed in power transmission they should be driven by belt to machinery and by belt or silent chain to shafting, avoiding gears. The shafting should be well balanced and placed so that the drives are of proper length and the lower side of every belt is pulling—avoiding bevel gears and cross belts as much as possible. A quarter twist belt, if installed properly, is not objectionable for light duty, especially if it enables a more satisfactory arrangement of machinery.

There should be ample space around each machine, without waste, although too much is better than not enough. There should be sufficient head room above each machine for a chain block and a suitable structure to carry it.

The light question is an important consideration often overlooked or neglected clayworking plants.

Avoid deep pits if possible and always keep above ground water level with the bottom of any pit.

Line shafting should be carried on independent concrete or brick piers and all machinery platforms should be sufficiently heavy and well braced to reduce building vibrations to a minimum.

The conveying machinery usually employed in clay plants consists of troughing belt conveyors and belt bucket elevators. Sticky or wet clays are very difficult to convey and elevate, even on inclined elevators with open buckets or flights, and should be avoided if possible.

If depth or elevation can be had, it is advisable to use a gravity hopper below the dry pan instead of scrapers—thus lessening maintenance cost and power consumption.

The dry grinding plant should always be separated from the rest of the factory by a dust-proof wall or partition. Dust is harmful to human lungs as well as to bearings and will cause belts to slip. Shafts can pass through such partitions but belts should not go through. Modern factories sometimes encase the grinding machines and remove the dust by fan suction.

Finally, provision should be made for expansion in every factor of the plant for future increase in capacity.

Power House.

The power equipment should be independently enclosed in a dust and fireproof building or rooms. If belted to a line shaft it should be so located as to balance the load, or in any event, there should be no material extension of the line shaft to connect with the power drive and an end connection should be that nearest the heaviest load. Where steam is used for drying, the equipment for such applications should be close to the power plant in order to keep down the cost of installation, to conserve the heat, and where it will be under the watchful eye of the power operator, bearing in mind, of course, that the position of the dryer relative to the movement of the ware is of first importance.

There should always be a surplus boiler, enough room left at the rear for removal and cleaning of boiler tubes, and space at the front to allow a sufficient coal supply close to the furnaces. The boiler house should be so located that fuel can be delivered to the boilers in a convenient and economical manner.

There should be sufficient space between engine cylinder and building wall to allow the removal of piston and rod.

The power house should be fireproof and provision made for future extension.

Dryer.

The receiving end shuld be close to the machinery delivery and the cooling end should face the kilns. At the end of the dryer toward the kilns cooling space or cooling tracks should be provided. The closer the dryer is to the kilns the shorter the haulage of the dried ware and the shorter the waste heat duct from the kilns, if such a system is employed.

It is imperative that the dryer be fireproof throughout.

Kilns.

Convenient car switching for the ware and convenient delivery and distribution of coal must be possible. The kilns should, without waste of space, stretch along a stock shed and railroad switch.

As an illustration we have sketched the three clay working plants shown in Figs. 1, 2 and 3. For the sake of clearness it is deemed advisable to abbreviate some of the lettering as follows:

B..............	Bin	B. M.......	Brick machine
Cr..............	Crusher	D. P.......	Dry pan
Conv.	Conveyor	S..........	Screen
El.	Elevator	Tr.........	Track
F...............	Feeder	T. Tr.......	Transfer track
P. M.	Pug mill	R. R.......	Railroad

Building Brick Plant.

(Fig. 1).—The clay storage building can be extended to any desired capacity towards the clay intake end. The crushed clay or shale from the crusher is delivered by a short chute to a continuous bucket conveyor which can supply either the storage building or the pan bin directly; it can also take the stored shale by means of the underground strand up to the pan bin. The screened clay from the pan can chute to storage bins at the bottom of which a belt conveyor is operating towards an elevator at the pug mill bin. If these storage bins are filled, the screened clay can chute down directly to the belt conveyor mentioned. Additional pans and additional storage bins for ground shale can be built without any other change in the arrangement (shown dotted).

The engine is running over, the drive is located in the middle of the line shaft between equal loads and all belts are pulling at the under side.

The dryer blower is driven from the main engine during the day and by a separate motor or gas-engine during the night. The necessary clutch coupling in the counter shaft is provided for.

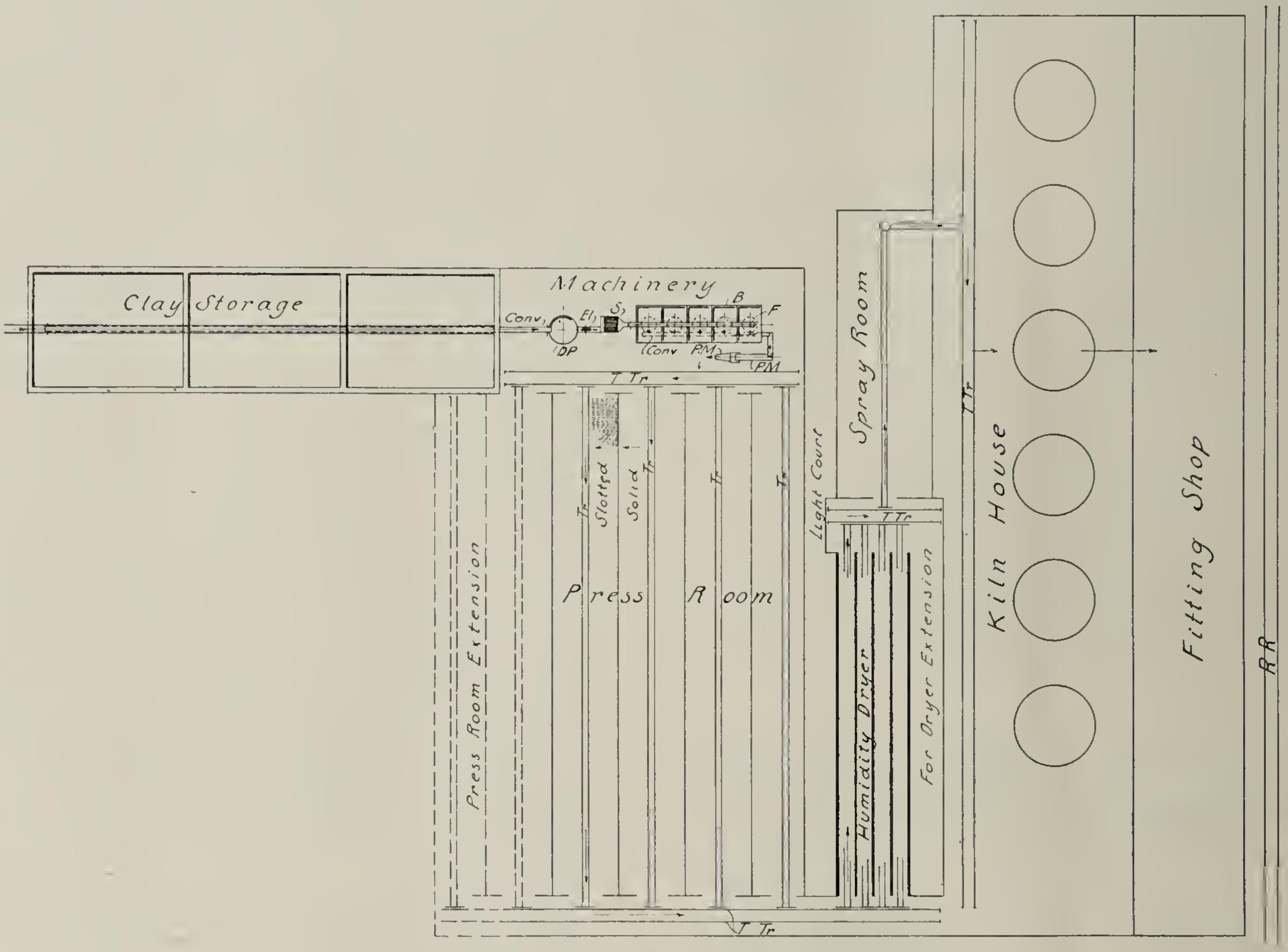

FIG.2.

The loading track along the off bearing belt is short, straight, and close to the intake end of the dryer.

The waste heat intake to the blower is located very near the center of the periodic kilns.

Dryer, blower house, and power station are built with independent brick walls and good light is obtainable. The machinery building will receive its light from two light courts, through windows above the dryer and elevator monitor.

The transfer track from the dryer stretches along one side of the periodic kilns and passes between the two rows of tunnels or chambers of the continuous kiln. Electric transfer cars can be used for operating along these kilns. The intake tracks to the kilns are straight and short.

There are two railroad switches and three stock sheds. Coal is being delivered close to the kilns and boilers.

The dryer can be extended and also the kilns.

It is often difficult to find satisfactory solution for a machinery layout with the application of a steam engine with dependent shafting and belting, especially for a plant of large capacity. With the application of electric power we have much more latitude in the machinery arrangement and less difficulty in finding a satisfactory solution.

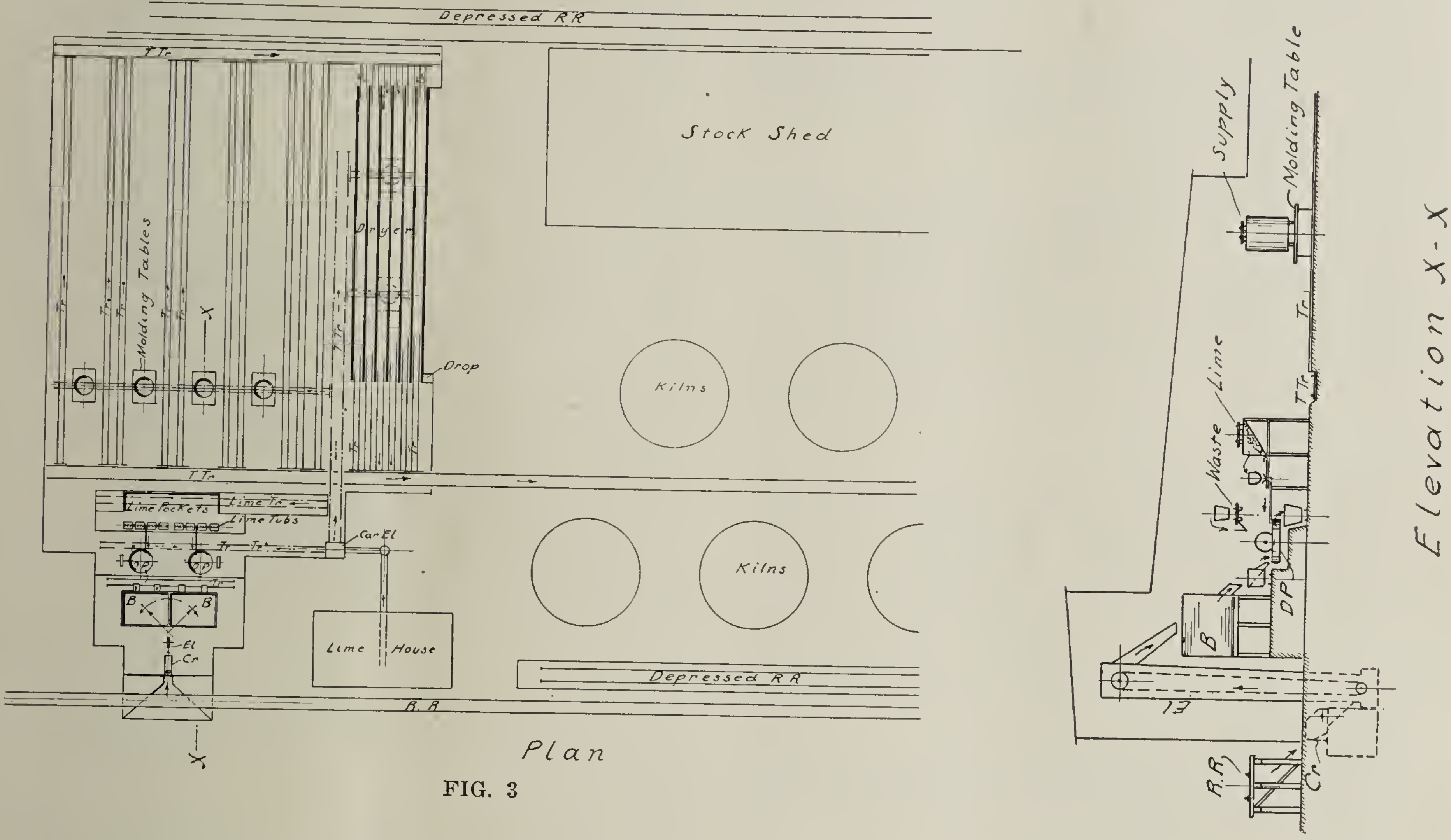

FIG. 3

Terra Cotta Plant.

(Fig. 2).—The clays are dumped by car or conveying machinery into storage bins and from there taken by a conveyor and elevator to a dry pan. Th ground clay is screened and delivered into small bins for each clay with a feeder at the bottom of each bin and a belt conveyor alongside the feeders to carry the clay to an open-top pug mill, from which it passes down to a closed top or conical pug mill.

The clay is now ready for the molders and is taken to the so-called press building by trucks on wheelways or by cars on tracks as shown. The clay taken down the first track in the press building is here made into ware which is then moved over towards the second track to remain for a while on a slotted floor, with a few steam pipes below for partial drying, before the ware is picked up from the second track and taken into the humidity tunnel dryer, or the ware can be run directly to the dryer. Over a part of the press room is a second story for storage of molds and for the drafting room.

From the dryer the ware passes through the so-called spray room for the particular coating. The grinding and preparation room (pebble mills, tanks, etc.) for the glazes is located in the second story of this building; this would also be a good place for a laboratory and an office.

Close to the spray room is the kiln house and next to the kiln house the fitting shop and then the railroad. Terra cotta work is, for the most part, special work to suit the requirements of the orders and made up accordingly, hence we have no stock shed or stock room but a fitting shop instead, before shipment is made.

A separate power house for generating electric power is not shown in the drawing.

Silica Brick Plant.

(Fig. 3).—From the railroad car, on a low trestle, the quartzite is dumped into a pocket in front of a jaw crusher, then crushed, elevated and stored. It is drawn from the bins and run to the pans. From the other side the pans are supplied with the necessary lime. The lime slip is piped down from a row of lime tubs especially made for this purpose (Fig. 3-a). Each tub has its independent bottom discharge above the same trough. To one side of these tubs are open lime pockets supplied with lime from cars on the track above. The lime is brought in here on cars on tracks and through an elevator from a lime house near the railroad.

The prepared clay-lime mixture is dumped into cars below the pans and taken to the elevator and then to the molding room by discharging them over cylindrical containers open at the bottom in the center of each molding table. The molding tables are at one end of the room to allow for long tracks at the other end in order to have the ware lose some of its water before it enters the tunnel dryer. There are also molding tables above the dryer for larger wares which require slow drying.

The car and track shown in elevation above the pans are for the return of all waste to the pans. The lower loading and transfer tracks and the previous elevator are used for this purpose also. Note the same elevation of the three upper tracks (waste, lime, and supply).

COST OF LABOR SAVING DEVICES.

THERE WILL hardly have been a period in the brick trade when the necessity for saving labour and the reduction of costs appealed to the manufacturer as it will do in the near future. High wages, expensive coal and materials, and shortage of labour, will set going the inventive mind to overcome these difficulties.

There are already several well known devices which many yards have adopted; as for instance, steam navvies, runways, belt conveyors and elevators, and aerial ropeways, but, of course, the question of their adoption depends to a great extent on output, and careful consideration should always be given to this factor.

Generally speaking, the smallest of steam navvies will not show a very good return unless a minimum of 400 cubic yards of clay be got per working week, and obviously the greater the amount got over this quantity the more economically will the navvy work.

As regards conveyors and elevators, these in many cases are quite satisfactory and suitable even for small outputs. The old-fahioned method of wheeling coal from the ground up a wooden gantry on to the kiln can be disposed of by the use of a bucket elevator, in which the coal is tipped into a chute on the ground and taken into a hopper over the kiln; the installation can be erected for about $480, and where an electric motor is used for the motive power the cost of current is very low. There are many of these elevators in use which will put up the whole of the coal required for the double shift in half an hour.

The loading of bricks into railway wagons or motors by hand is always a slow and costly operation, and here considerable labour, time and expense may be saved by the use of an electric conveyor, which takes the bricks right from the bench in the kiln and delivers them into trucks or wagons; this apparatus is slightly more expensive in the first cost than the former, but the cost of loading is so much lower than by hand that the conveyor is very quickly paid for by the saving effected.

Another very useful loading apparatus is the gravity roller system, which for stacking bricks on the yard and loading from the kiln is quite efficient. These can be bought in eight or nine feet lengths for $24 each.

Where clay has to be transported a quarter of a mile or more to the machine an aerial ropeway may be found to be a decided improvement on the endless haulage with trucks on rails, doing away with the erection of long steep gantrys which are constantly being moved as the position of the clay face alters, and taking less power to haul on account of the reduced friction and freedom from the dust and dirt which collect on the wheels and rails where the road runs on the surface, besides taking very little power to drive.

A labour-saving appliance which is in the stage of development is the electric truck for conveying bricks from the kilns to the stack. The truck that will meet all the requirements of the brickmaker has not yet been found, and the present cost of some $1,680 is likely to be reduced in the near future There is a wide field open to engineers in this country, and the opportunity is at hand to introduce further new and improved mechanical devices. It is hoped that they will rise to the occasion and save us from looking to other countries for such appliances.—S. Higgins in The British Clay-Worker.

WORK OF THE CERAMIC EXPERIMENT STATION OF THE U. S. BUREAU OF MINES.*

By R. T. Stull.

UNDER an Act of Congress approved March 3, 1915, provision was made for the establishment of 10 mining experiment stations and 7 mine safety stations in addition to those which were already established, providing that not more than 3 mining experiment stations and mine safety stations be established in any one year.

Up to the present time there are 12 experiment stations, 5 of which have been established under the above named act. Stations are now located at Pittsburgh, Pa.; Minneapolis, Minn.; Golden, Colo.; Seattle, Wash.; Bartlesville, Okla.; Berkeley, Calif.; Fairbanks, Urbana, Ill.; San Francisco, Calif., and Columbus, Ohio.

The problems of these different stations are largely those which are of greatest economic importance to the mining and metallurgical localities in which they are located. Some stations are necessarily doing work parallel or similar in nature though quite different in detail.

The Columbus station was established July 1, 1917, and was located at Columbus for the following reasons: Ohio is the leading clay products state in the Union, its annual output being more than 22% of the entire valuation of the nation's annual output. Columbus is the approximate center of the ceramic industry. Ohio State University established the first ceramic engineering school in the United States. It has its ceramic traditions and is broadly known. The University entered into an agreement whereby it proposed to supply the Bureau of Mines with adequate rooms for offices and laboratories, to supply light, heat, power, and janitor service free and to provide laboratory furniture and other fixtures and to loan to the Ceramic Experiment Station the use of equipment consisting of kilns, machinery and other apparatus.

The Columbus station is the only experiment station of the Bureau of Mines, devoted to investigation of clays and other ceramic materials, therefore its work is not confined entirely to the problems of greatest interest to the locality, but it has to do with all ceramic problems common to the United States and its foreign possessions.

The station has twelve employes, consisting of a superintendent, chief clerk, stenographer, ceramic engineer, ceramic chemist, five ceramic assistants, a potter and an unskilled laborer.

The station's problems are those pertaining to the mining, refining and utilization of ceramic raw materials, the investigation of industrial problems with a view to reducing the cost of manufacture and to improve the quality of products. It has also to do with the elimination of waste and the safeguarding of the health of ceramic workmen.

The station is authorized to do co-operative work with the differerent government bureaus; with the different states and with the industries. Clays are being tested for the Government Land Office, for the Indian Schools and the U. S. Geological Survey. A co-operative agreement has been made with the Geological Survey of Ohio for investigating the clays of the state.

Ohio's most valuable clays are the high grade fire clays and their investigation has been undertaken as the first step in a general survey of the different clays of the state. The geological and field work has been practically completed and samples taken by Mr. Wilbur Stout of the State Survey and the testing of these clays is to be done by the Ceramic station.

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*By permission of the Director U. S. Bureau of Mines.

The U. S. Public Health Service is investigating conditions in the potteries as regards the effect of dust upon the health of the workmen and the conditions causing lead poisoning. The assistance of the Ceramic station has been requested and its services have been offered in conducting these investigations.

During the progress of the war, the work which was undertaken consisted principally of investigations of war minerals. The problem of producing large quantities of chemicals for explosives, poisonous gases and dye stuffs made a great demand upon the chemical stoneware industries. The first problem investigated was to determine the properties of some Ohio and Pennsylvania stoneware clays. Methods were studied to improve the quality of the ware and to bring to the attention of the chemical stoneware manufacturers, valuable clays not being used.

The second problem undertaken was that of American graphites and bond clays for the manufacture of graphite crucibles which are of importance in the melting of brasses, alloys and special grades of crucible steel. Before the war the graphite crucibles produced in this country were made from practically all imported graphite and German bond clays. Over 90% of the graphite used for this purpose came from the Island of Ceylon. The importation of German bond clay was shut off in 1914 and the supply on hand was soon exhausted. It was therefore necessary for the American crucible manufacturers to look to the American clays for use with their graphite in the production of crucibles. This condition at first created not only a hardship on the crucible manufacturers but upon the users as well, since the crucible manufacturers in general had not learned how to use American clays which were quite different from th imported German clays.

Crucible manufacturers had large stocks of Ceylon graphite on hand but after the United States entered the war it was necessary to conserve ocean shipping in order to carry men and material to France. The importation of Ceylon graphite was therefore restricted and it was found necessary to restrict the crucible manufacturers to the use of as much domestic graphite as possible. The Ceramic station therefore took up the study of American graphites and bond clays for crucible making purposes. Over 200 crucibles made from foreign and domestic graphites and bond clays have been made and tested and it has been found that by proper blending and preparation, our domestic materials will make crucibles equally as good as those made from imported materials.

Fire brick and other refractories are of vital importance to the metallurgical industries. Without proper refractories for furnace linings, the majority of the modern metallurgical processes would be impossible. The bulk of refractories are made from fire clay, silica, magnesite, bauxite and chromite. Refractories made from zirconia, silicon carbide and spinal have come into prominence more recently and are being used in limited quantities.

Furnaces used in the production of copper and certain grades of steel require magnesite refractory lining and large quantities of magnesite brick are used annually. Prior to the war over 80% of the magnesite used for refractory purposes in the United States came from Austria, although vast deposits of magnesite occur in the states of California and Washington. Most of the magnesite refractories find use east of the Mississippi River, but the cost of mining, preparation and delivery of the magnesite from the Pacific Coast was so great that the foreign magnesite could be secured in normal times much cheaper. Since the foreign supply became unavailable, the manufacturers of magnesite refractories have drawn largely upon the magnesite from the Pacific Coast and to a smaller extent upon the Canadian deposits.

The necessity of using more expensive raw materials together with the increase of prices due to abnormal conditions, has brought the market price of magnesite brick up to nearly three times that of normal times.

Enormous deposits of the double carbonate of calcium and magnesium, commonly known as dolomite, occur widely distributed throughout the eastern states. The state of Ohio contains thousands of acres of dolomite, At present its principal uses are for crushed stone in concrete and for surfacing roads. Perhaps the best known deposits are those of the Cedarville, Ohio, district, some of which are so pure that they correspond very closely to the theoretical dolomite formula.

During the past four years, numerous attempts have been made by various investigators to devise methods of preparing dolomite so that it could be used as a substitute for magnesite refractories. About a baker's dozen patents have been issued on methods of treating dolomite for refractory purposes. The material is being treated under a few of these patent processes and sold in the loose or granular form under different trade names. The material has found a limited application in steel furnaces where it is used for making temporary patches in the magnesite lining and is also mixed with a suitable binder and tamped in the bottom of open hearth furnaces. However, in so far as the writer can learn, the production of a practical dolomite fire brick that will withstand a long period of storage without slaking or disintegrating under atmospheric conditions, is yet to be attained.

About a year ago the Ceramic station undertook the study of the preparation of dolomite for the manufacture of refractories. The different patent processes for dead burning dolomite have been tested and a number of other methods are being investigated. The work has not progressed far enough at the present time to draw definite conclusions, but it can be said that "the results are promising."

Over 50% of the white clays used in the better grades of pottery comes from England, it being the general opinion that the imported clay produces ware of a better color and texture. In order that we may be independent of importations, it will be necessary to develop new deposits and to improve the present refining processes.

In June last year, the Ceramic experiment station undertook a survey of the china clay and kaolin deposits east of the Mississippi river. One hundred and five samples of white clays were collected in the field and shipped to the Ceramic station for tests. Sixty of these samples were collected by Prof. A. S. Watts representing the U. S. Bureau of Mines and the remainder by Dr. Ries and Dr. W. S. Bayley representing the U. S. Geological Survey.

These clays are being tested in order to determine their physical properties and methods applicable to their purification are being studied. A new type of clay washer has been developed on a laboratory scale which removes the finer impurities not removable by the present clay washing process. Before the new method of washing clay can be recommended, it must first be tested under practical working conditions.

Although the work of the Ceramic station is national in scope, it perhaps means more to the state of Ohio than any other states because of the states high rank in the production of ceramic wares. To illustrate the economic importance of the work of the Bureau of Mines' Ceramic experiment station, we might mention the fact that the development of a practical dolomite fire brick would develop a new industry and add to the state's wealth by utilizing a raw material low in value and abundant in quantity.

The main object of the white clay investigation is to improve our domestic clays by refining and blending in order to produce materials at least equal to the imported pottery clays. If this can be done it will mean much in economy and independence nationally and especially will Ohio be a benefactor since the state produces over 42% of the value of the nation's pottery output. Ceramics as a field for investigation is so new, it has often been said that "the surface has not been scratched." The problems crying for investigation are so numerous that it is difficult to determine which is most in need of the nursing bottle.

Space will not permit of a more detailed account of all activities of the station, but it is hoped that the above brief description of a few problems undertaken will give the reader an idea of the kind of work the Ceramic Experiment station is doing and the kind of service it is trying to render the public.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XXXVIII.

The Continuous Kiln.

IT is a question whether we should not adopt a more distinctive name. The common up-draft kilns as operated in the Hudson River and Chicago districts are continuous in their operation and are often called continuous kilns. The setting, followed by the burning, cooling and drawing, progresses in stages from end to end of the kiln shed, a practically continuous operation though not in the sense as we apply it. The designation "continuous" is used, however, and leads to some confusion.

The connection and continued operation of a number of periodic kilns in order to make use of the waste heat is just as much continuous as the operation of a battery of compartments. Such a method of burning is usually termed a "System" and bears the name of its promoter.

We designate a single battery of compartments, as semi-continuous, in consequence of the independence of successive burns. Each burn starts at one end of the series of compartments and is completed at the other end. Subsequent burns are merely repetitions and are entirely independent of the preceding operation. The operation of the kiln as a whole is periodic, but the several compartments are in series, and the progress of the fires during each burn is continuous as we use the term. If we introduce a return heating flue the semi-continuous kiln becomes fully continuous in its operation, but its designation is the same.

If we build a duplicate series of compartments for the return, the double series becomes a continuous kiln, or in other words two semi-continuous kilns are a continuous kiln.

The term continuous applies to the method of operation, but instead we should have a name descriptive of the principle involved.

Continuous kilns are sometimes called regenerative, and this is a better term in that it refers to the principle. Strictly speaking there is no regeneration of the gases, no renewal of the heat value, but the term regenerative has become firmly fixed in metallurgical operations, and means heating up the incoming gases by the waste heat from the hearth, which is identically the same principle as our continuous kilns.

Economizer, which in steam and combustion engineering means recovering for use in the boiler or hearth the otherwise waste heat from it, is a better term than either continuous or regenerative. Regenerator in metallurgy is identical with economizer in steam engineering but the latter is the most consistent.

The continuous up-draft kiln operation mentioned above could not legitimately be called a regenerator or economizer operation.

The semi-continuous and continuous kilns are truly economizers.

The periodic down-draft kilns in series are regenerative but we would not designate them as a kiln, instead and properly, when adapted to the utilization of their own waste heat, they become an economizer system.

There are many economizer kilns in use and in prospect in this country. It is not our purpose merely to describe them. Rather we wish to show the development of the principles and the chief modifications. There are a number of excellent kilns which we will not mention simply because they differ slightly from others herein presented.

We have in mind that the presentation of principles may be of some assistance to economizer kiln operators in improving their kilns. The study of the development of kilns is interesting and one can frequently trace the idea back to other simple types of kilns and improvements are often combination of existing types. This leads to progress in the development to which purpose this presentation is dedicated.

Economizer Kilns in General.

The great factor in favor of the economizer kiln is the saving of fuel. Fifty per cent. saving is a conservative estimate and many operations will show sixty to seventy per cent.

The development of these kilns in this country was slow for the following reasons:

(1) American coal is high grade, and, in the past, cheap. Any requisite temperature can be obtained from our coals by direct cold air combustion and there is no need to adopt economizer kilns to get temperatures from low grade fuel.

(2) The early kilns were small —in general having a weekly capacity scarcely equal to the daily output of an American factory.

(3) High priced American labor. It is frequently claimed that the labor cost of operating an economizer kiln is less than that of a battery of periodic kiln of the same capacity. This claim can be substantiated only in isolated instances, and certainly not in the operation of the small early kilns. As the capacities of the economizer kilns increase from 5,000 to 20,000 bricks per day up to present capacities in excess of 100,000 bricks per day there will undoubtedly be some economy in labor but taking the average over the country, past and present, the records will show no economy in labor, and in many instances an increased labor cost sometimes offsetting the saving in fuel, though on an average the net bal-

ance is in favor of the economizer kiln. However labor cost had its effect in retarding the growth of the kiln.

(4) Unsatisfactory operation of early kilns. Our first kilns were of foreign design and we simply enlarged them to meet our needs and thereby got into difficulties. Moreover the small foreign kilns burned two and even three kinds of ware to accomodate the variable temperatures, whereas the American output in the enlarged kilns was of one kind only.

(5) America demands a better quality of ware than that in foreign countries. Our facades are a surprise to visiting engineers. Many of these effects were impossible in the earlier kilns, and some of them are impractical in the modern kiln, or at least the modern kiln has not yet proven its adaptability. Besides this there were excessive scumming difficulties, and a swelling of the product to bloating in consequence of lack of oxidization, also streaked edges in certain lines of face bricks. These troubles are attributed to sulphur gases, the sulphur not only coming from the coal but often in greater quantity from the ware itself, thus developing a much larger volume of sulphur gas than in a down draft kiln.

Limey clays which ordinarily burn a pale red to greenish buff, when burned in economizer kilns came out sometimes red, sometimes buff, with all intermediate shades irregularly intermingled, in fact individual bricks are streaked red and buff and in mass altogether unsightly. The lime-iron-silicate buff color is materially aided in its development by reducing kiln conditions, which were easily obtainable and during some stages of the firing normally prevailed in down draft kilns while in the economizer kilns the large excess of air maintained unfavorable oxidizing conditions.

Seger explained the cost of the kiln. Many manufacturers balked at the high cost of an initial installation although piece-meal they invested a larger sum in periodic kilns.

While the development in this country has been slow yet it has gone steadily forward and today the kiln occupies a prominent place in our industries. The capacities have been enlarged to meet our requirements and the results have been improved until in several lines of common wares they equal those of the down draft kiln.

In consequence of this advance the economizer kiln has largely entered the field of the down draft kiln.

In common bricks, which were largely burned in up-draft kilns, the desire for a longer campaign, the demand for a better product, the need for reduction in cost, however small it might be, to meet competition, and the necessity of eliminating the smoke and gas nuisance, especially in city districts, have led to the replacement of up-draft kilns by economizer kilns.

Face brick have taken up the kiln in some degrees but not extensively because of the difficulty in producing the varied color effects which the trade demands.

Salt glazing has not been successfully done in the economizer kilns although one or two kilns have been built for this product, the results have been unsatisfactory and other lines of ware had to be developed to keep the kilns in operation. Several Mendheim kilns in Germany are said to be producing salt glazed ware but this kiln in the type used for salt glazing, is in a measure a periodic down draft kiln and it does not fully use the economizer principle. We are informed that when the salt glazing period is reached in any compartment it is disconnected, salted and shut off and so remains until cool and emptied. Years ago the writer experimented with an economizer kiln in salt glazing and had some excellent results but the operation as a whole was not satisfactory and the work was discontinued. It seemed, however, to be possible and it is strange that in the intervening twenty-five years the problem has not been solved. It requires a kiln so designed that the compartment being salted can be cut out of the series during the salting period and afterwards until the salt fumes have been driven off. We have seen plans of a kiln in which such operation is possible but we do not know of any having been built.

The fire brick industry was the first to take up the economizer kiln in this country and the last to make any extensive use of it. A gas fired tunnel kiln was built in Maryland more than thirty years ago and also a small kiln was built in Illinois. These were the first so far as we know, and were in use until within the last year or two. The third was built in Ohio in 1884-5 for face bricks but the product was changed to fire bricks and later came back to face bricks although they were made from fire clay and differed from fire bricks only in size. This kiln is no longer in use. Two gas fired kilns were built in Pennsylvania in 1891 and one in Ohio the same year for fire bricks but all were abandoned after a short trial. About this time, or a year or two later, two economizer kilns were built in Missouri for fire bricks but neither are in operation today. There are a number of economizer kilns burning other products made from fire clays and which are used in burning fire bricks when the demand justifies, but the fire brick companies making fire bricks exclusively have not taken kindy to the economizer kiln. It is inexplicable that the industry which first took up the economizer kiln in this country and for which such a kiln is particularly fitted because of the possible high temperature from economizer operation, should not have successfully developed it, especially in view of the fact that refractory ware is less exacting in its temperature range than other lines of ware for which the economizer kiln has proven successful.

Recently the fire brick industry has taken up the car tunnel kiln and there are four or five installations which are running successfully.

Pottery manufacturers have taken little or no interest in the economizer kilns until recently they have taken up the car tunnel kiln and are leading representatives in the use of this kiln.

The terra-cotta field was not invaded by the economizer kiln except in a single instance in 1891 and the kiln in question was shortly abandoned.

Both the ring kiln and the compartment kilns are extensively used in the manufacture of common bricks, face bricks, paving blocks and hollow ware. The compartment finds a wider field in face bricks but since the higher product includes the lower it is equallly efficient in the lower grade wares.

The determination of the type of kiln, tunnel or compartment, for any product is a question which requires consideration. The advocates of the car tunnel kiln voice the opinion that it will displace the simple tunnel and compartment types but this is inconceivable.

The compartment kiln is a more advanced type than the tunnel kiln and it will have the preference in higher grade wares. In its simplest form, the chief advantage is a greater degree of down draft, which is better than horizontal draft. In the more advanced types the draft is fully down, and the firing is not in contact with the ware. We thus get a better heat distribution and a cleaner product. In fact the double gas compartment kilns are identically rectangular down draft kilns with the economy of heat recuperation. The setting is uniform throughout and there are no trace or vertical flues in the set ware. Moreover the compartments are large, permitting the use of a double track within the kiln for setting work, anod the wicket work is reduced to the minimum.

In a tunnel kiln, turntables or transfer cars must be used inside the kiln and only one car at the setting face is practical. This must be unloaded and removed before a second car can be placed thus retarding the rate of setting. The labor per ton of ware is slightly greater in the operation of the tunnel kiln than is in the compartment kiln.

The compartment kiln, on the other hand, costs more than the tunnel kiln, and its maintenance is greater, which off-sets, more or less the greater labor cost in the tunnel kiln.

The tunnel kiln probably leads in the number of kilns in use in this country but so close do they run together that one is not justified in making a positive statement. Each kiln has its field of work and though the fields over-lap yet they are not identical. The tunnel kiln is used in the manufacture of common bricks, fire-proofing extensively, paving blocks and drain tile. The latter product because of the setting difficulty is preferably burned in a compartment kiln. The compartment kiln is used for the above mentioned products and in addition is predominent in face bricks and roofing tile.

The several types are now firmly established in this country and the high price of coal during the war has induced manufacturers of clay ware to study the kilns and give them much greater attention than in the past. It is likely that there will be some recession in fuel costs but the price will never return to that before the war and the result will be a much more rapid advance in the use of economizer kilns.

(To be Continued.)

FIRE BRICK MANUFACTURE AND USE.*

By W. H. GRANT, ELK FIRE BRICK CO. HAMILTON, ONT. CAN.

THE TERM "FIRE BRICK" itself may be somewhat misleading, due to the fact that, literally speaking, any brick used to resist the action of fire and heat is a fire brick. However, such refractories as Silica Brick, Magnesite Brick, Chrome Brick and a number of others are generally designated by their own specific name instead of coming under the general classification. The term "Fire Brick" has, therefore, come to mean ordinarily a brick made from fire clay, or a fire clay brick, and it is with this type of material we will deal primarily.

The question, therefore, of the correct manufacture and comprehensive application of fire brick to the steel and clay products industries affords a field for extensive investigation. Generally speaking, all fire clays differ somewhat one with another, no matter how great their similarity of external appearance, and require methods of handling and of manufacture. It is also true that every furnace presents its own individual problems, as no two furnaces treat their fire brick linings the same, though they may appear to be indentical in construction and operation.

In this paper the writer will endeavor to cover the subject as briefly as possible, but with sufficient thoroughness to touch upon the essential features of the "Manufacture and Uses of Fire Clay Brick." Although not accepted by all authorities as being correct, fire clay is generally conceded to be the product of kaolinization on weathering-down of felspathic minerals. It is of secondary origin in that it has been transported from its place of formation to its place of final deposition, and generally occurs in horizontal strata closely associated with the coal measures.

Fire Clay Suitable for Fire Brick.

Fire clay suitable for use in the manufacture of fire brick may be divided into two distinct classes, viz.:—Soft or plastic clay and flint or hard clay. These two clays ordinarily occur in close proximity. At times they are separated by a thin layer of sandstone, sometimes by a little seam of coal, and again they are found in direct contact with a sharp "parting" between them, showing that they are formed under widely different circumstances.

Plastic clays are, as a rule, smooth in texture, soapy in appearance and capable of weathering down to a shapeless mass, possessing considerable plasticity and other workable properties. Flint clay, on the other hand, is hard and flinty in appearance, resistant largely to weathering agencies and possesses very little bonding powers. It is, however, more refractory than the soft clay, as plasticity and refractories do not appear to go together. Fire clays are mined by three diefferent methods. If the overburden is light, stripping and open work mining methods may be followed. If the clay is too deep for this or not suitably situated physically, shaft mining or tunneling methods must be resorted to. Of the three methods employed, the drift or tunnel mining is followed in the majority of cases. Tunnels are driven in the clay veins similar to the manner in which bituminous coal is mined. The clays, both soft and flint, are blasted with dynamite out from the solid face, and broken up by sledges into chunks of suitable size for handling. They are then loaded in mine cars and transported to the factory. It is during this stage of manufacture of fire brick that great care must be exercised in seeing that all objectionable material is thrown out and nothing but the best clays are loaded and sent to the plant. The method of manufacture to be employed depends largely on the working properties of the clays used, the physical properties of the brick desired and the conditions of service for which the brick are intended. The classes of fire brick are generally designated by their methods of manufacture, and are known to the trade as Hand-made, Soft Mud, or Sand Molded, Steam Pressed and Stiff Mud or Wire Cut There are instances when more than one of these methods are employed in the manufacture of the same brick, but this is not common practice. Generally speaking, fire brick are manufactured by at least, one of the above-named methods, and whatever method of manufacture is to be used, the first step is the crushing and grinding.

In the Hand-made Brick, the clays are crushed in jaw or roll crushers, or broken to suitable size by hand. They are then mixed in the proper proportion and ground in a wet pan with sufficient water to form a "mud" of proper consistency the molding. The brick are then hand-molded in wooden molds laid on a monolithic-concrete, stone-flag or sheet steel, hot floor to dry to proper consistency for pressing, and are then pressed in small hand presses. These brick are then completely dryed on the same hot floors before being set in the kilns for burning.

The clay for soft mud or sand-molded bricks can be ground either in the wet pan or in the dry pan. Ordinarily the soft mud molding machine is a dry pan proposition, but there are places where the clays are ground and tempered in the wet pan and moulded only by the soft mud machine. The green brick from the soft mud molding machine are either dumped on pallets, placed on pallet cars and tunnel dried, or are dumped on the hot floor to dry, and are hand repressed as are hand-made brick. Such brick as these go out on the market as hand-made brick, and are one of the types of brick mentioned above as being manufactured by two methods of manufacture. The soft mud brick, however, in the true sense of the word, is not touched by any other manufacturing equipment after it is once laid on the pallets and set on the drying cars. In other words, it is completely manufactured when it passes through the dies of the soft mud machine.

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*Read before the Canadian National Clay Products Associationt, Montreal, May 26.

For steam pressed brick the clays are ground in dry pans with just enough moisture to cause the clay particles to stick together under pressure. The clay dust is then fed into the high pressure. These bricks are then taken to the kilns for burning, or, if necessary, are run through tunnel dryers and thoroughly dried before being set. This is by far the simplest method of manufacturing fire bricks.

Stiff mud or wire cut bricks are essentially a dry pan ground proposition, though there are plants using a wet pan for tempering the clays before they are fed into the brick machine. In operation, the dry or previously tempered wet clay, as the case may be, is conveyed into the brick machine, and after pugging and tempering is forced through a steel die in the shape of a stiff column by a large auger in the center of the machine. The clay column is then cut by wires stretched on a cutting device to the various sizes desired. In some plants these bricks are hacked on cars and passed directly into the tunnel dryers, while in other plants they are repressed by steam presses before being dried. Such bricks are known as stiff mud repressed bricks.

The next step in the manufacture of fire bricks is the burning, and is carried out in practically any and all types of permanent-walled kilns found throughout the country. Some people prefer round kilns—some rectangular kilns, while others are obtaining remarkably good results from the newer continuous railroad tunnel kilns. The fuel used is ordinarily soft coal, fuel oil or gas, depending on the availability and cost. Coal is, however, used in the majority of cases. The type of kiln used, the temperatures of the burn and the number of days required, depend largely on the particular clay used, and the desired physical properties of the burned product. It is well within the scope of this operation to turn out a high per cent. of good marketable ware, or it may send the entire kiln of brick to the dump heap, and for this reason the burning should be handled intelligently and carefully. After the bricks are burned and the kiln is cooled, they are loaded directly into the cars for shipment or hacked in the stock sheds, where they are carefully protected from the weather and held ready for shipment as desired.

Having followed the manufacture of fire bricks briefly through the various steps from the clay mining to the railroad car, we are now ready to consider some of its uses and application.

Uses in Steel Industry.

In the steel industry, practically every distinct operation from the time the ore is charged into the blast furnace until the finished material passes from the rolling mill to the stock shed, requires its own particular class of refractory material. The bricks are selected for service in specific locations, because of the fact that they possess certain properties, making them well adapted for this class of work. In all classess of fire brick service there are encountered numerous factors which tend to destroy the fire brick, and a brick possessing qualities, by virtue of which it is best able to resist these destructive agencies, is the brick which will last longest, and give the best results.

In some classes of service, high refractories is required, in others the ability to withstand rapid changes in temperature without spalling, and still in others resistance to abrasion is a quality of primary importance. All of these things must be taken into consideration, therefore, in the selection of a brick for a definite purpose, if economy and satisfaction are to be obtained.

The steel industry may be roughly divided into three departments—Blast Furnace, Open Hearth, and the Rolling Mill. In all of these departments fire bricks are required and each department has its own requirements to be met.

In the blast furnace department fire bricks are required for the blast furnaces, or the stack itself. They are used to line the battery of hot blast stoves in connection with the blast furnace affords a very striking example of the proper reversing valves and elsewhere. In addition to this, the power plant, which operates the blowing engines, must be supplied, and the iron ladles in which the molten iron is transferred from the blast furnace to the Bessemer Plant, or to the open-hearth department, must be fire brick lined. The blast furnace affords a very striking example of the proper selection and application of fire brick in the various requirements of its different parts. In the top of the furnace, but where the abrasion of the raw charge of limestone, coke and iron ore is exceedingly heavy, a suitable brick must be used, and one which will withstand heavy abrasion, as well as erosion, caused by the dust-laden gases, which move with high velocity. In the mid-section or in-wall of the furnace, the temperatures increase and the chemical actions of the gases become more destructive, and though the abrasion of the burden is somewhat decreased, the service requirements are more severe. In the Bosh and Hearth, the conditions to be met are greatly diversified, and are exceedingly severe. The intense temperature, slagging and corrosion, by the iron itself, as well as by the slag and vapors present, the pressure of the burden, as well as the gas pressure maintained in the furnace, all tend to use up the lining of fire brick best suited to meet the conditions encountered, that clays are selected according to physical properties, and different methods of manufacture are employed.

In the open hearth department, we find approximately the same demand. Hot metal mixers, open hearth regenerators, flues, checkers and steel ladles all require fire brick linings, which differ somewhat in accordance with their own class of service. The brick designated for a ladle brick will not give good service as a checker in the generators, and vice versa. Silica Brick and Magnesite Brick find great demand in open hearth furnace construction, but these refractories are without the bounds of this discussion.

In the rolling mill department, the requirements are limited to soaking pits, ingot heating furnaces and billet heating furnaces and fire bricks suitable for each particular service must be used. Time and space do not permit any detailed discussion as to the best method of determining just what properties a brick shall have to make it suitable for such classes of work, and how it shall be made. Let it be said, however, that such questions are the everyday problems of the refractory engineer connected with this class of work.

Uses in Clay Products Industry.

In the clay products industry, the fire brick requirements and uses are somewhat less diversified though just as important. The uses cover largely power plants, dryers, and kilns though in some operations additional equipment is required.

As boiler settings in one industry are the same as in any other, fire brick requirements are practically identical. Dryers are largely waste heat contrivances though the direct fire type require a few fire brick in the fire boxes and flues. In the kilns, however, the question of proper selection arises, and to this a little time will be devoted.

Kilns differ in construction and design as widely as the products burned in them, and some types of kilns have derived their name from the products they burn. Barring the question of Maximum burning temperature and the kind of fuel used, conditions and requirements are about the same. In the fire box and bag walls, of course, the most refractory fire bricks are required, as it is here that the highest temperatures are reached as well as other conditions for which a less refractory brick may not be well suited. The ability to withstand changes in temperature, as well as to resist slagging and clinkering action are essential. The side wall brick in the kiln proper are subjected to slightly lower temperatures than those in the fire boxes, but they must resist the heating and cooling action experienced in the operation of periodic kilns, and must support the weight of the kiln crown without settling at the maximum temperature of the burn. For the kiln crown, a brick of lower refractories, but greater strength, seems to give the best service. Kiln crowns are practically always subject to a considerable radiation loss, and due to this, the material may be burned in the kiln at a temperature which closely approaches the melting point of the crown brick without any bad results. Considerable crushing strength, hardness and destiny are desirable, as a soft weak brick is apt to be crushed by the weight of the crown. Floor tile, flue brick, stack brick, etc., are also required, but this class of material is generally governed by the service conditions absolutely, and cannot be specified by any hard fast rule.

It might be well to emphasize at this juncture, the desirability and advisability of using fire bricks which are especially well adapted to the service in various parts of the kilns or furnace, instead of adhering to one grade only. Instances are not at all rare where so-called first grade material failed utterly, and third grade material replaced it to a decided advantage, both as to price and service. This calls to mind the fact that the "time honored custom" of buying fire bricks as first grade, second grade, third grade, etc., is fast losing prestige, because nearly every fire brick made is a "first grade" brick for some particular class of service, or it may be "third grade" for others, and such failures as noted abouve are encountered occasionally because the first grade brick for some purposes was not first grade for the service in which it was placed.

The care and proper handling of fire brick are problems which appear to be little understood, and which are often badly abused. If you have ever visited a fire brick plant, you were, no doubt, impressed by the large stock sheds, in which the burned bricks are hacked up prior to shipment. Practically all brick stock are placed under shelter, and are carefully protected from the weather. You may have noted also, that these brick are handled very carefully in every stage of manufacture, and when loaded in the cars for shipment, are carefully packed in straw or shavings, in order to avoid breaking the corners and the edges. This is not done for the sake of appearance only, but experience has taught the fire brick men that broken corners and rounded edges are not conducive to good workmanship on the part of the fire-mason, nor to satisfactory service. Contrast these methods with those found in a large majority of plants buying and using fire bricks. The bricks are often roughly and carelessly thrown out of the cars, and are allowed to be out in the open, unprotected from the rain and snow, until they are laid up in the kiln or furnace. To make a good smooth job thick mortar joints are used, and the furnace is probably heated up and put in service before the brick work has had an opportunity of thoroughly drying, and before the water is entirely driven off from the thick mortar joints. You can readily surmise the results, and the brick maker is always to blame. Serious fire brick failures have been traced back directly to improper care and handling after the bricks were received by the plants where they are to be used, but it is a difficult matter to convince the consumer that his methods and not the brick are at fault.

This brings out one very important feature in the fire brick business which is, I believe, largely overlooked by most consumers. Practically all modern and up-to-date brick manufacturers have spent years of their time and consideable money in making a study of the various requirements of the trade, and in the investigation of their own product. They have learned that certain properties are required for some particular classes of service and have proceeded to manufacture a brick suitable for this work. They are continually striving to improve the quality from its use. On the other hand, however, the average consumer pays no particular attention to his own specific requirements. He uses a "No. 1 or No. 2" grade of brick and is apparently satisfied with the service without giving a thought to the question as to whether a different type of brick might not answer the purpose better. When he buys his brick he buys them as a "No. 1 brick," and the manufacturer has no idea as to where they are to be used. In all probability an entirely different brick would give just as good or better service at a lower price, but the manufacturers, in not knowing the condition, cannot make recommendations.

The answer to this is co-operation. If, when sending out inquiries for your next order of brick, you should forget to specify a carload of "first grade brick," etc., and will write instead, stating that the brick are to be used for a certain purpose, the fire brick man has an even chance. Give him some idea as to the fuel to be used, manner of stoking, whether by hand or machine, and the conditions of the draft, and he can then probably offer you a suitable brick without guessing at what you should have told him, but did not. He may be misled and go wrong in his recommendations, but if a concern is deserving of your business, it is certainly worthy of your confidence, and may be able to save you a few thousand dollars in a fewer number of years.

KENTUCKY TRADE NOTES.

BUILDING operations in Louisville are picking up some, but they are slow yet, so far as the requirements for brick are concerned. Architects say that they have lots of premliminary work coming in, but that often when the item of cost is summed up the project will be shelved for the time being. Gradually, however, some new big work is developing. There is, for example, a new addition for the Atherton Building at Fourth and Chestnut to cost about $200,000 for which the Alfred Struck Co., of Louisville has secured the contract. The B. F. Avery & Sons Co. are making extensive additions to their plant, the Kentucky Wagon Works is planning new additions, and here and there all around some new projects that mean brick and tile are coming into action, so the trade should be getting active by mid-summer.

Brick prices in Louisville, and in most of the territory in the state heard from east of Louisville range around $14.00 at the kiln for kiln run, and $15.00 for all hard. For local delivery the prices range around $16.50. But few reports have been received from the west end of the state, not enough to give a real indication of prevailing prices and conditions of trade.

Among the local brick men, there is report of some improvement in inquiries, but so far actual sales have not been of great volume, more actual business coming from country points where building seems to have gotten under headway earlier than in the city here.

The Coral Ridge Clay Products Co., say that they have a very fair call from points out in the state, but so far the local trade has not hit its stride, though there are many new building projects in the air and being figured upon.

The Southern Brick & Tile Co., has had a very good season in drain tile, but there is not enough doing in brick yet to get excited about.

The R. B. Tyler Co., dealers in face brick, hollow tile, and an extensive line of building supplies, say that the demand for face brick is showing some life now. It has been a bit slow in getting started, but it looks like good business ahead now. Capt. W. E. Whaley is the new man in charge of the clay products end of their business, taking the place of the late Isaac Tyler. The Captain, who was among the instructors at the training school here, is going at his new work with the enthusiasm and vim characteristic of our army men.

The Eastern District of the Kentucky Clay Products Association had a meeting at Lexington, May 30, and among those attending were:—T. Bishop, of the Southern Brick & Tile Co., and J. T. Howington, of the Coral Ridge Clay Products Co., Louisville, W. H. Hall, of the Maysville Brick Co., and H. T. Miles of the Spahr Brick Co., Maysville; Hiram Owens, of the Barbourville Brick Co., Barbourville, and H. C. Kramer of the Lexington Brick Mfg. Co. Fred Busse, of the Busse Brick Co., Covington, was sick and couldn't come, but wrote.

The meeting was held at Lexington and the most important action of the conference was to put in operation the open price plan of competition in the eastern district of Kentucky, which includes Louisville and the territory east. The plan is to make daily market reports, which for the present are exchanged through the office of President Cramer, of the Kentucky Clay Products Association at Lexington.

Reports on business conditions from those in the eastern district indicate that the busiest section at present is down toward the southeast corner, from Barbourville, Ky., to Knoxville Tenn.

W. H. Hall, of the Maysville Brick Co., reports that so far the demand for brick has not shown much life, but he has hopes that it may do so later. It is pretty much the same story with H. T. Miles, of the Spahr Brick Co., of the same place.

At Lexington, while the lumber trade reports lot of business and building, the brick end of the business has not, so far, shown a corresponding pick-up, President Cramer reporting trade as rather slow at present.

The Barbourville Brick Co. is fairly busy and seems to have gotten in more trade than the others in the east end, while down at Knoxville, Tenn., the Knoxville Brick Co., reports very busy, with something like a million and a half brick to furnish on unfilled orders.

HOW PAVING HELPS DAIRY CLEANLINESS.

By J. H. Coolidge, Vice President of the Belle Vernon-Mapes Dairy Company.

CLEANLINESS is the first law of modern dairy service. When the Belle Vernon-Mapes Dairy Company built a new central plant at Cedar avenue and East 38th street, Cleveland, in 1914, opportunity was given to facilitate the most perfect cleanliness in every detail of the plant and equipment.

From this plant 55,000 homes are supplied with milk before breakfast each day. The milk is received from inspected farms within a radius of 100 miles of the city, is pasteurized, bottled in sterile bottles, sorted and placed on the wagons at midnight for delivery in the early hours of the morning. This is not as simple as it sounds, although detail is minimized as much as possible by the most modern machinery.

A bit of Fine Brick Architecture at the home of the Belle Ver-non-Mapes Dairy Co., Cleveland, Ohio.

The newly received milk is conveyed to the top of the building where the cans are emptied. From here the milk travels by gravity to nine pasteurizing machines, each of 2,000 gallons capacity, where they are subjected to a steam heat of 140 degrees for forty minutes. Gravity again conveys the milk to bottling machines where dozens of bottles are filled and capped in a single operation, requiring a few seconds. The crated bottles go to the cooling room, where they remain in a temperature of forty-two degrees until shipped. Similar machine methods are used in cleansing and sterilizing the bottles.

When it comes to purity, however, machine methods are supplemented by the closest personal vigilance. Bacteriological tests are taken incessantly both before and after pasteurization. The rooms where machine operations are carried on are filled with live steam throughout the night in order to kill the last lurking germ. In our Walker-Gordon laboratories these precautions are doubled. This is the department in which modified milk is prepared from physician's prescriptions, for young or ailing infants. Our regular wagons carry thousands of these bottles daily, each representing the specially prescribed diet of some youngster for that twenty-four hours. Certified milk and Jersey milk, from our own farms, as well as Bulgarian lactic buttermilk, are among the special products that are handled through this station.

Complete cleanliness necessitates control of conditions outside of the buildings as well as inside. In choosing a paving material for our court and drives we confronted the two-fold requirement of sanitation and great durability, because it must withstand the wear of some 200 heavy wagons and trucks daily. Vitrified brick was chosen as embodying these two qualities and forming a pleasing harmony with the brick of the building. The cooling room, where heavy hand trucks are used in transferring the crated bottles is also brick paved, as is the floor of the washing department and of the stables located across Cedar avenue. In the summer, wear is increased, for the Telling ice cream plant is closely identified with our enterprise and adjoins it. This plant put out a million gallons of ice cream in 1915.

With such a traffic and such an ideal of cleanliness, we do not rely upon the city street cleaning department. We have our own flusher and our own white wings. We clean not only our own premises, but the public streets for a radius of several blocks. For some situations, periodical cleaning is enough, but with us cleanliness must be continuous. Brick paving has been an efficient help in maintaining this standard.

PRICES AND PROFIT.

Any business to continue and be worth while must yield a fair measure of profit, and that is one of the things the Clay-Worker has contended for right along—the getting of a fair profit. As a rule, too, this has in the past called for an effort to obtain higher prices. In the main, through a generation or more the prices on clay products have been too low and the great call of the times has been to strengthen the backbone of the trade in the matter of prices. To quite an extent it will ever be thus, but right now another phase and a somewhat different question presents itself. The question is how to get a profit and at the same time reduce prices to the lowest possible minimum.

The situation in the building world is such today that building operations are being held in check somewhat by markedly higher costs than have prevailed before. That, however, is only one of the good reasons for seeking the lowest practical level of brick prices consistent with fair profits. Another and even more important one is found in the fact that the high level of lumber prices makes a better opportunity than has ever been presented before to push clay products in preference to lumber in construction work if the price can be made favorable, and at the same time profits will accrue to the makers.

The scarcity of stumpage is bolstering up lumber prices and holding them today at practically double what they were before the war. To state it another way, there has been practically no come down from the war peak in lumber prices, and the indications are that they will not come down, and it is this which makes an opportunity for brick and other clay products if, in the face of present conditions of high fuel and labor cost the price of clay products can be brought down to an inviting level.

Let us not lose sight of the fact that profits are essential. There should be no cutting of prices to the point where profits will disappear. But it is, in contrast to most of the times in the history of the clayworking industry, a time to seek and work for a lower level of prices. It is a time for turning to every promising means for economy and cost saving in manufacture to the end that the prices may be held down to a level which will invite a much larger use of clay products, and at the same time yield a fair return in profits for those engaged in the business.

MACHINERY AND DRYER FOR LARGE TILE.*

By Lambert Haigh, Bucyrus, Ohio.

IN THE MANUFACTURE of large tile, we must take into consideration the fact that the manufacture is quite different from that of small tile. For small tile, a soak pit is often located at the clay bank to prepare the clay. The clay is transferred from the soak pit and is put through a pair of rolls or crusher placed directly over an auger machine. In making large tile, we find two processes largely used.

Lambert Haigh, Bucyrus, Ohio.

In the first process, where the press is used in combination with an auger machine for smaller tile, the clay is put through the dry pans (the size of the pans being determined by the capacity of plant required). After leaving the dry pan, the clay is elevated and is passed over piano wire screens. The screens mostly used, are 30 inch x 72 inch in size with openings between the wires 3-32 inch. The clay passing through the screen goes into a bin placed directly over the pug mill while the large particles, better known as tailings, go back to the pan for regrinding. From the pug mill (which, of course, is the machine for getting proper elasticity of the material) the clay is elevated by wet clay elevator to the press feeder and thence into the steam press.

In the second process, where the press is used for large tile, but not in combination with an auger machine for small tile, the method of preparing the clay, which is gaining in popularity, is the wet pan process. As in the former case, the clay goes through the dry pan and screens, and then is put into a wet pan instead of a pug mill. Here the proper plasticity of the material is obtained. Then the clay is elevated by wet elevator into the press feeder and thence into the steam press. It has been found that the wet pan process gives better and more thorough mixing than the pug mill process and has been largely adapted by the sewer pipe manufacturers, but both of these processes have proved very satisfactory.

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*Read before the Convention of the Canadian National Clay Products Association, Montreal, Quebec, May 26.

Leaving the press, the tile are generally cut on a bow cutter. In most cases the smallest tile made by press method are 10 inches diameter. Tile up to 8 inches are generally made on an auger machine, placed on dryer cars and transferred to a waste heat or steam dryer. This system is possible, because, they are cut in single lengths, approximately 13 inches long, and do not have to be turned in drying. In the case of large tile, it has been found that the large slatted floor dryer, using exhaust steam from the press in day time and live steam at night, is by far the best method for drying as the large tile are handled similar to sewer pipes, each tile being placed on a pallet after leaving press, and handled by trucks designated for that purpose to take them to the dryer. These tile as a rule, have to be turned in the dryer to insure satisfactory drying.

A suitable dryer building for a plant running 150 tons capacity per day would be 80 to 100 feet wide, 280 to 300 feet long, and three floors in height. These floors are slatted floors, with steam pipes underneath the first floor and sometimes steam pipes are also placed under second floor. The tile on the third floor are dried by the heat rising from the floors beneath. The smaller size tile, 10 inch and 12 inch, are generally handled without pallets and are loaded on platform trucks to be taken to the dryer. The 14 inch, 16 inch and 18 inch are mostly handled on pallets, then placed on platform trucks to be taken to the dryer. The 20, 22 and 24 inch always require pallets and are taken from the press one at a time and are conveyed to the dryer with a prong truck or side lift truck. The arrangement of tile in the dryer is generally as follows: The smaller tile, 10 and 12 inch, are placed on the lower floor, 14 inch to 18 inch on the second floor, and the largest size tile on the third or upper floor.

The 10 and 12 inch tile, after being dried, are placed on platform trucks or wheelbarrows and taken direct to the kiln for setting. The larger sizes are placed one at a time on spring saddle trucks to be delivered to the kiln.

The setting of these tiles in the kilns is a matter of great importance and the most practical method is to place the small tile at the bottom and the large tile in the center and as near the center of the kiln as is possible.

If bee hive kilns are used, the tile are set as mentioned and when larger tile are set, it is of great advantage to place smaller tile inside of the large ones. This saves considerable space as well as making a safe setting throughout the whole kiln, the small tile being set two high in the bottom and the larger tile on top of these smaller ones, and then smaller tile are placed in the larger one. The whole being set up to the crown of the kiln. The writer, as might be naturally expected prefers the continuous setting and burning on account of the saving in fuel and the saving in burning labor which is obtained by the continuous system. Better results are also obtained by the continuous method of burning, as the bottom tile are equally as well as those placed on the top, which is nearly impossible in the round down draft or bee hive kiln. The up draft kiln is not satisfactory for the burning of large tile.

CO-OPERATING WITH THE RETAIL LUMBER DEALER.

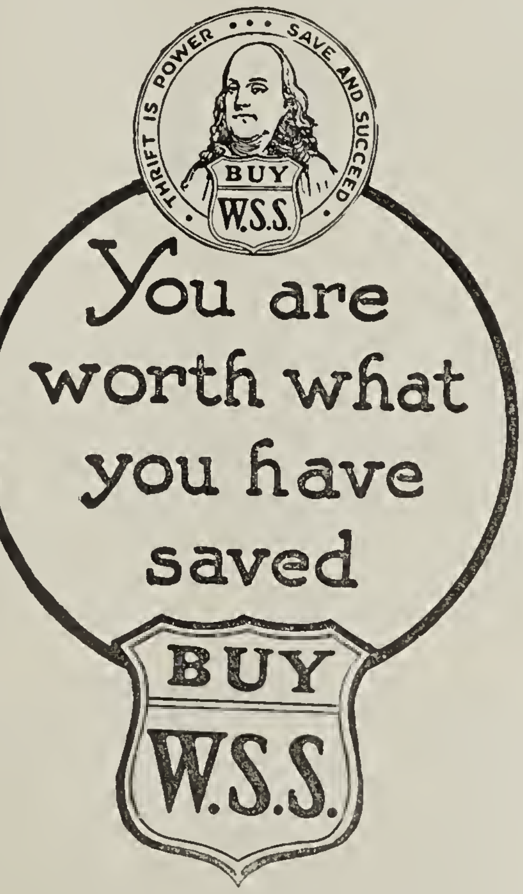
In a paper presented at the meeting of the Wisconsin Clay Manufacturers' Association, Prof. E. R. Jones, of the University of Wisconsin, presented a paper on the subject of stimulating tile trade in which he made a plea for a closer order of co-operation with the retail lumber dealers. He said that almost every retail lumber dealer in their state would handle tile if his interest were aroused.

Then he told of several dealers he knew who handle about a carload of tile a year, putting them in stock where they take up valuable space, and for which reason they often charge as high as six cents a foot for five-inch tile. This he considers as poor business, and in contrast told of dealers who handle large quantities during the year yet never have more than 1,000 tile of assorted sizes in stock.

The explanation of this is car lot sales delivered from the car to the customers, and this is an explanation that fits into the brick business just as well as the tile business. The plan in this case is, when a farmer comes in for a quantity of tile, to get busy with this farmer and other farmers so as to make an order booking among them that will call for a carload, which effects a saving in price to the farmers and saves the dealer from having to stock and handle.

It is an idea which in modified form is being carried out by enterprising brick manufacturers. They are realizing that the retail lumber dealer is the logical man to be on the job representing them in the community. Some brick may be stocked for urgent retail trade, but the big opportunity is recognized as that of the dealer acting as agent for the brick man and handling the carload trade. Sometimes, as with the tile, the dealer may get a number of customers wanting limited quantities of brick to let him combine their orders for a carload shipment. At other times it may be a building job which of itself calls for several carloads of brick. The point is to have the dealer interested and looking after the matter, which means making it worth his while to do so.

The brick manufacturer should strive to get a price for his brick that will enable him to give a fair agency commission to the retail dealer, then protect the dealer in his territory, co-operate with and assist him, and both will benefit. That is what some brick men are doing already, and it is a line of effort which if followed intelligently and persistently by enough of our brick manufacturers will do a wonderful lot toward putting forward the doctrine of brick for permanent building. In a word, it is a big help in the brick boosting game, means more trade, a wider use of brick and less throat-cutting competition.



THRIFT IS POWER ••• SAVE AND SUCCEED
BUY W.S.S.
You are worth what you have saved
BUY W.S.S.

Building is not an expense when it is done with brick, but an investment which adds permanent value to the ground on which the building is erected.

CANADIAN CLAYWORKERS AT MONTREAL

A Pleasant and Profitable Three Day Convention Demonstrates That The Brick and Tile Manufacturers of Canada are Entering A New Era of Prosperity.

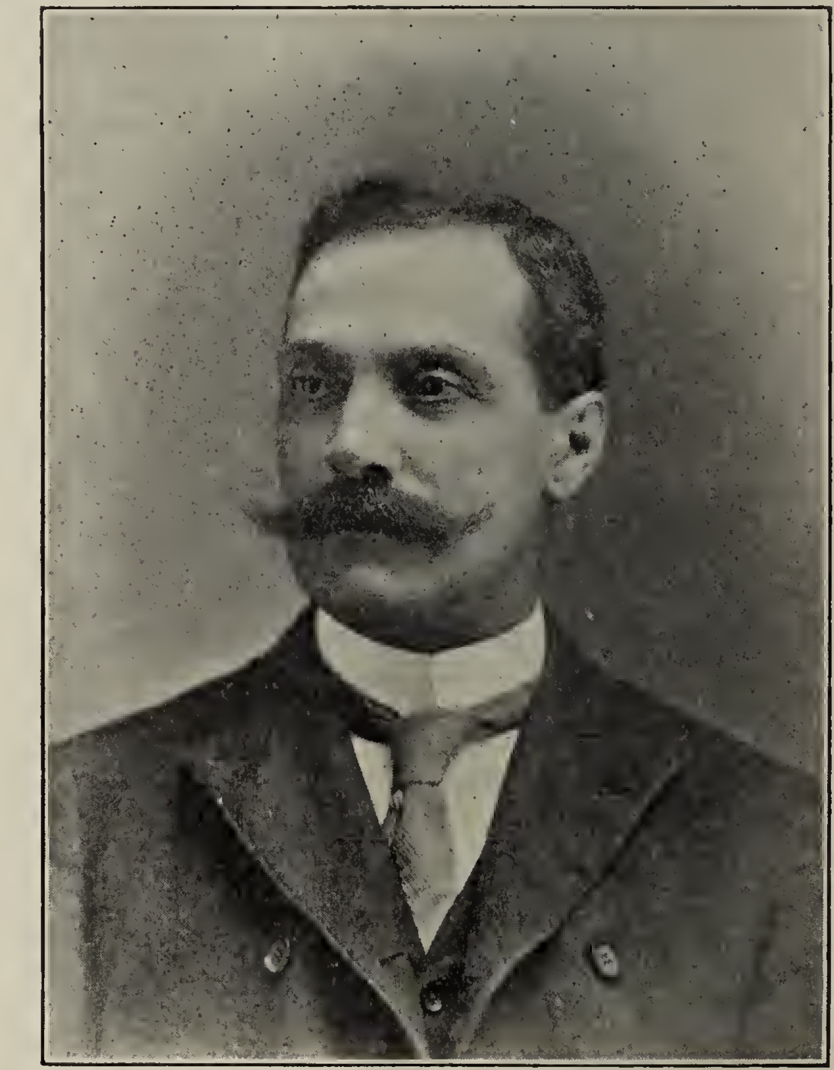
ENTHUSIASM and earnest interest in the undertaking is of more importance in any organization work than mere numbers, so it may be recorded that the Seventeenth annual convention of the Canadian Clayworkers was a very successful meeting, though the number in attendance was small. There is a reason, several reasons in fact, for the awakening of the Canadian clay craft. For four years or more they have been dormant, little if any building being done except with the manufacture of munitions or other war work incident thereto. Now the war is over, and our neighbors like ourselves are picking up the thread of industry and again planning to meet the demands for local building which must follow, for there is a need for more homes, and more buildings of all kinds, so it was with a spirit of optimism that the little band of craftsmen gathered at the Canadian metropolis to devise ways and means of meeting the present labor situation and resume operations in the most effective way possible. The deliberations were earnest and many valuable suggestions were made for economy in plant operation and the marketing of brick and tile.

As is always the case, there were a few guests from the States who were welcomed most cordially and made to feel that their contributions to the discussions were desired and appreciated. George H. Clippert, of Detroit, ex-president of the N. B. M. A., and Theodore A. Randall, of Indianapolis, secretary of the N. B. M. A., were among the early arrivals and were shown many courtesies. William P. Blair, of Cleveland, vice-president of the N. P. B. M. A., was the guest of honor, being one of the formal speakers listed on the program. He made a characteristically earnest appeal for road improvements, declaring that permanent highways were essential to the life and industrial growth of a nation, and of course, impressed those present with the fact that brick paved highways are the only permanent and dependable highways.

In the absence of the Mayor, Mr. N. T. Gagnon of the National Brick Company of Montreal welcomed the visitors and expressed the hope that their stay in Montreal would prove both pleasant and profitable. He then saw to it, as a member of the local entertainment committee that everything possible was done to that end, in which he was ably seconded by Chairman L. W. McArthur of Westmount, Quebec; M. W. Davidson, of LaPrairie, and other members of the local committee.

George H. Clippert was called on by the president and responded briefly but happily, stating that it was his first time at a Canadian convention, but that he found the same kindred spirit and good fellowship which characterized the National Association. He said there was a decided resumption of activity in the building line in Detroit and that regardless of the high price of building material the demand was sufficient to keep all the local plants going to capacity or as nearly so as the supply of labor would permit. Mr. Blair and Mr. Randall were in turn called on by the president and spoke in a similar vein, as did Col. W. C. Trotter of St. John, Quebec, who declared that the scarcity of labor was the one fly in the industrial ointment at this time.

Mr. Sidney Higgins of Manchester, England, was introduced and stated that he was on a visit to Canada and the United States for the purpose of getting information relative to labor saving devices. The situation in England is much the same as in America, wages are very high, hence the brickmakers of England must supplement hand labor by such mechanical devices as can be used effectively. Having been impressed by the work of the National Brick Manufacturers' Association, as he had learned of it through The Clay-Worker, he and other brick manufacturers of Manchester, which is one of the largest industrial centers of Great Britain, formed a local association and through co-operation have brought about reform, but for which the industry would have been wrecked almost past all hope of recovery. Before the war brick sold for $3.50 per thousand. Now they are selling for $6.00, and the price will probably be advanced, owing to the increased cost of fuel, labor, etc. He said his attendance at


N. T. Gagnon, Montreal, Quebec.

the meeting was wholly unexpected, his original plan was to make a tour of inspection among the clay plants of America, but being advised by Mr. Randall that there was a convention of brick men at Montreal he turned his steps thither, and was very grateful to Mr. Randall for his timely advise and to the Canadian brethren for the cordial spirit in which he had been welcomed among them.

President Thomas Kennedy then read his annual address, as follows:

To the Members of the Canadian National Clay Products Association:

Gentlemen of the Convention—I have great pleasure in welcoming you on behalf of the Executive Committee. to this, the Seventeenth Convention of the Association.

This Convention marks two innovations; First, the holding of same outside of the Province of Ontario; Second, holding the meetings at this season of the year.

Up to the present time, the membership of the Association has been largely made up of clayworkers, doing businnes in Central Ontario. Montreal members in attendance at the 1918 Convention at Toronto, extended a very pressing invitation to the association to hold this year's Convention at Montreal; subsequently they expressed the opinion that a Convention held in this city, would meet with much greater success if held in the summer, hence, the innovations mentioned.

In accepting the invitation so heartily and kindly extended, the Executives were influenced by the desire to extend the membership and increase the interest in the Association among the clayworkers of Eastern Ontario and Quebec and to afford an opportunity to the manufacturers and workers of the various clay industries, to become better acquainted. Our earnest hope is, that these objects will be attained.

Sidney Higgins, Manchester, England.

We meet this year under much happier conditions than those that have prevailed at out last four meetings. Our Empire and our allies have emerged triumphantly from the greatest war in history, which gives us great cause for thankfulness.

I do not believe that any class of business was harder hit than the clay industries by the war. Our business being largely with the building trade and with the municipalities, the fact that the builders were unable to secure either bank advances or mortgage loans, and that the municipalities closed down on all work that could possibly be postponed, brought the clay-working industries almost to a standstill at a very early period of the war and what little business there was, could only be handled under the greatest difficulty, owing to the fuel and labor shortage. Meanwhile the usual overhead expenses had to be carried. The fact that quite a number were compelled to go out of business, is not to be wondered at.

Today there is a very general feeling that we are entering upon a period of great prosperity, that once the Peace Treaty is concluded and the labor question settled, that Canada and the United States will both go forward with a bound, that the demand for equipment, materials and manufactured goods will exceed anything that we have heretofore known, that there will be a very large amount of federal, provincial and municipal, and other large works; all of which will create a great demand for clay products.

The fuel situation has greatly improved since the cessation of hostilities, and, though coal is not back to anything like the figures prevailing previous to the war, and, is not likely to be, it is now possible to obtain a good quality of coal (which is something that was almost impossible during the last two years of the war) and at figures which under present rates for labor must be regarded as reasonable.

The present labor conditions are of course a cause of much anxiety, but we are hopeful of a settlement on a basis that will be fair to all parties concerned.

All of the foregoing give us great cause for being optimistic.

We have great cause for pride in the part taken in the war by the Empire of Canada and also in the fact that the clayworkers were not found wanting, thousands having enlisted in the struggle to uphold the liberties of the world. Among the better known are Col. Wilson, manager of the Sun Brick Company: Major Peter Anderson, brick manufacturer, Edmonton, who escaped from Germany; Col. Harold Trotter and Major Clifford Trotter, sons of Col. W. C. Trotter, president of the standard Clay Products Limited; Lieut. F. B. McTanen, manager of the Inter-Provincial Brick Company; Lieut. Green of the Sun Brick Company; Lieut. Chambers of the Ontario Provincial Clay Products Works; Lieut. Price, Prices Limited; Wm. Burgess, Jr., of the Don Valley Brick Works; Wm. Pears, Jr., of West Toronto, who I regret to say, was killed in action; Lieut. Frank McCannell and Wilson McBain of the Milton Pressed Brick Co.; David Graham of Shale Products Limited; D. D. Ommidon superintendent Citadel Brick and Block Company, who served in the U. S. Army. These are only a few of the many hundred names that might be given.

Ninety enlisted from the Don Valley Brick Works, sixteen of whom were killed in action; thirty-three have so far returned to work. Many other plants have somewhat similar records.

There has been a great deal said as to the inability of the returned men to settle down but on comparing experiences among quite a number of the manufacturers, the report is, that while returned men taken on, at work new to them, may not have taken hold, that the old employees returning to their positions, have almost invariably settled down at once.

Regulation of prices is not any part of the work of this Association, but nevertheless, each member should determine for himself, that he will not part with his goods without a reasonable profit on the transaction. It is absolutely useless to give our time, employ our capital, use up our clay, wear out our machinery, and have all the worries and anxieties of business, unless we are making a profit on our sales. We must not be afraid to ask a price for our product.

There are many advantages to be derived from attendance at conventions of this nature, acquaintances are formed with others engaged in the same line of business. Ideas are exchanged to mutual advantage, friendships formed, which do much to add to the pleasure of life. One comes to know those with whom he is in competition and finds in the great majority of instances that they are much finer fellows than had been suspected. There is also the benefit derived from a little relaxation from business.

The Executives have arranged a program which will be of interest to every member. Papers on matters old and new in connection with the clay industries will be given and I am sure that all in attendance will be well repaid for their time and expenditure in attending this convention.

The Montreal Reception Committee have also arranged for a number of events, which will, I am sure, add greatly to the enjoyment of our visit.

We are delighted to have with us, at this Convention, Mr. George Clippert, of Detroit, ex-president of the National Brick Manufacturers' Association; Mr. T. A. Randall, secretary of the same association since its organization, and also editor and proprietor of the "Clay-Worker," Indianapolis; Messrs. Gibson, Steinhoff and Allison of the "Brick and Clay Record," Chicago; and a number of other gentlemen identified with the clay industries in the United States. We extend them a hearty welcome and trust that their stay among us, will be enjoyable and profitable.

I am very sorry to have to announce the death of Prof. W. H.

Scott, B. A., of the Ontario Agricultural College. Prof. Scott has been a regular attendant at our Conventions for several years past and at our last Convention, gave us a very interesting paper. He had a pleasing personality and was well up in the subjects to which he devoted himself. We shall miss him very much.

In closing I desire to bear testimony to the enthusiasm with which the various members of the Executive and particularly our invaluable secretary, have devoted themselves to the interests of the Association. On my own behalf, I wish to thank them for their hearty co-operation during my term of office and to bespeak a continuation of same for the incoming president.

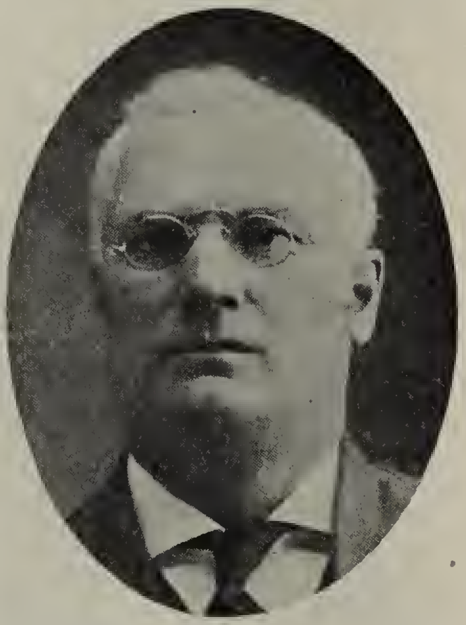
I also wish to thank the members of the Association for the honor done me in electing me to the office of president.

Entertainment Features.

The local committee was more than generous in the arrangements for the entertainment of visitors. There was a theater party Monday evening and a drive to the top of Mount Royal Tuesday noon. Lunch was served after which there was a series of impromptu speeches following the presentation of Canadian flags to the visitors from the States. Secretary Gordon C. Keith, of Toronto, sprung a very delightful surprise on Secretary Randall, presenting him with a fine Canadian flag, stating that it was exceedingly gratifying both to him and to the other officers of the Association to give the Secretary of the N. B. M. A. a flag as a token of the spirit of brotherhood which existed between the two associations. Secretary Randall was caught entirely unawares, but expressed his appreciation of the friendly spirit which prompted the gift and thanked Mr. Keith and the members of the Canadian Association both personally and on behalf of the members of the N. B. M. A., and assured them that the spirit of brotherhood was real and heartfelt.

Wm. Burgess, Toronto.

Gordon C. Keith, Toronto.



Matthew W. Davidson, La Prairie, Quebec.

Tuesday evening the annual banquet was held at the Queen's Hotel. There were fifty or more in attendance and there was music and speeches galore. The latter, happily, were of the impromptu sort. The star performer of the occasion was Harbor Master M. P. Fennell, who told of the commercial importance of Montreal and its great harbor, declaring that in the shipment of grain it was second only to Liverpool, and closed by inviting all in attendance to accompany him on a trip about the Harbor the following afternoon. A majority of the visitors did so and enjoyed the trip immensely. Mr. Fennell demonstrated that his statements were founded on facts, which was readily conceded after the visitors had seen the great docks and elevators where an ocean going freighter can be loaded or unloaded within a few hours. An unusual feature of the banquet was the fact that J. S. McCannell and his son, Frank R. McCannell, were both on the formal toast list. It is seldom that this happy condition occurs.

The convention program as given in full in the May Clay-Worker, was carried out almost to the letter. One of the most interesting papers heard was that by Lambert Haigh, on "Machinery and Dryer for Large Tile," which will be found in this issue. Other interesting papers will be given in full in subsequent issues.

The Question Box.

A series of most interesting informal discussions touching on various phases of the business, came up under the above head. Mr. A. F. Greaves-Walker answered the various questions as they were propounded. His remarks were supplemented by other members who happened to have personal knowledge of the particular matter under discussion.

One of the most interesting features of the convention was an address by Mr. Phillip Dressler of the American Dressler Tunnel Kiln Co., of New York City, who displayed a large variety of clay ware including enameled brick and terra cotta and fire clay block, which had been burned in the Dressler kilns. Mr. Dressler's father, Conrad Dressler, another recent arrival from England, was present and took part in the discussion.

Officers Elected.

The following officers were elected to serve for the ensuing year: President, William Burgess, Toronto; first Vice-President, Ryland H. New, Hamilton; second Vice-President, M. F. Gibson, Toronto; third Vice-President, T. H. Graham, Inglewood; Secretary-Treasurer, Gordon C. Keith, Toronto.

President Thomas Kennedy proved a very efficient executive. He was accompanied by his wife and daughter, who together with Mrs. Clippert, constituted the coterie of visiting ladies.

THOSE IN ATTENDANCE.

G. L. MEMORY, Elk Fire Brick Co., Hamilton, Ont.
RYLAND H. NEW, Hamilton & Toronto Sewer Pipe Co., Hamilton, Ont.
T. H. GRAHAM, Shale Products, Ltd., Inglewood, Ont.
FRANK R. McCANNELL, Milton, Ont.
J. S. McCANNELL, Milton, Ont.

DUNCAN C. MERKLEY, Merkley's Ltd., Ottawa, Ont.
GORDON C. KEITH, The Canadian Clay-Worker, Toronto, Ont.
THOMAS KENNEDY, Dominion Sewer Pipe & Clay Industry, Toronto, Ont.
C. B. LEWIS, Toronto, Ont.
F. B. McFARRIN, International Clay Mach. Co., Toronto, Ont.
CHARLES H. WALLACE, Clay Products Agency, Toronto, Ont.
JOSEPH ASSELIN, Mack Brick Co., Delson, Quebec.
P. F. FLEMMING, National Brick Co., Delson Point, Quebec.
M. W. DAVIDSON, St. Lawrence Co., LaPrairie, Quebec.
A. T. ALEXANDER, National Brick Co., Montreal, Quebec.
WM. CLARKSON, Goodyear Tire & Rubber Co., Montreal, Quebec.
HUBERT DESJARDINS, Montreal Terra Cotta Co., Montreal, Quebec.
F. H. DEVENISH, Contract Record, Montreal, Quebec.
W. DYKES, Morrison & Co., Montreal, Quebec.
J. H. ECCLES, Montreal Fire Brick Works, Montreal, Quebec.
N. T. GAGNON, National Brick Co., Montreal, Quebec.
GEORGE KENVIT, St. Lawrence Brick Co., Montreal, Quebec.
T. A. MORRISON, Morrison & Co., Montreal, Quebec.
B. C. TROTTER, Standard Clay Products, St. Johns, Quebec.
L. W. McARTHUR, Westmount, Quebec.
SIDNEY HIGGINS, Wm. Higgins & Son, Manchester, England.
DAVID B. GIBSON, Chicago, Ill.
F. L. STEINHOFF, Chicago, Ill.
THEODORE A. RANDALL, The Clay-Worker, Indianapolis, Ind.
GEORGE H. CLIPPERT, George H. Clippert & Brother Brick Co., Detroit, Mich.
A. F. GREAVES-WALKER, American Refractories Co., Baltimore, Md.

A. T. Alexander, Montreal, Quebec.

L. W. McArthur, Montreal, Quebec.

C. N. Parks, Dayton, Ohio.

L. R. W. ALLISON, New York, N. Y.
CONRAD DRESSLER, American Dressler Tunnel Kilns, New York, N. Y.
PHILLIP DRESSLER, American Dressler Tunnel Kilns, New York, N. Y.
R. W. STEERE, American Dressler Tunnel Kilns, New York, N. Y.
LAMBERT HAIGH, American Clay Machinery Co., Bucyrus, Ohio.
WILL P. BLAIR, National Paving Brick Mfrs. Assn., Cleveland, Ohio.
CHARLES N. PARKS, International Mach. Co., Dayton, Ohio.
W. H. GRANT, Elk Fire Brick Co., St. Marys, Pa.

CLAY SOILS.

The farmer who tills clay soils and has practiced tile drainage to any extent, knows how much less labor is required in the preparation of the soil for the growth of crops. Drained soils are easily plowed—the soil falling from the plow thoroughly pulverized and mellow as could be desired for a garden. Drainage adds to the increased temperature of soil from six to ten degrees—a difference of much importance in the germination of seed and growth of crops.

In the cultivation of crops the better condition of the drained soil is a source of delight to the observing farmer. The ease with which it is stirred, the mellow, fine condition when worked and the great saving of labor in the cultivation of the crops, are some of the chief advantages, to say nothing of the increased yield of crops.

The observant, wide-awake farmer will not be slow to avail himself of the benefits of underdraining clay soil.

EARN WHILE YOU LEARN.

WHEN THE WAR began we had only a few airplanes in this country, but when it closed we had thousands. During the war a great airplane industry grew up and a great branch of the army was organized—the Air Service.

How would you like to fly? Do you realize that the flying age has come and that airplanes are going to be as common as automobiles? "Over there" thousands were used. You have heard of the thrilling fighting they did but do you know that most of the time the flyers were sent out to take photographs? The cameras on the airplanes were the "eyes of the Army." The enemy could hide nothing from them. They looked down from above and made a perfect record of every movement of the enemy. The photographs showed his trenches, his machine-gun emplacements, his long range artillery and the location of many other things that it was necessary for us to know. But the making of photographs from the air was not easy. It had to be developed and perfected and thus sprung up the science of aerial photography.

Flying is going to be the big game in the army and you can depend upon it also that your Uncle Sam is going to do wonderful things with the aid of this new and intensely fascinating science of aerial photography, for this product of the war is not for war only but promises to be even more useful during peace. Its possibilities are unlimited. From aerial photographs you can make better maps than by the old methods. From the air you can photograph and survey inaccessible areas, obtain comprehensive views of great construction projects and watch the progress of the work. You can study stream and coast lines, railways and highways, and locate uncharted sand bars and other dangers to navigation and do half a hundred other useful things. Why not become an aerial photographer and earn while you learn?

The Army will have a school of aerial photography and expert aerial photographers from "over there" will be the instructors. The school will be located in a pleasant part of the country, with the best of living conditions. Uncle Sam will give you absolutely free your food, clothing, lodging and instruction, and pay you besides. Those that wish to fly and can make good photographs from the air will be placed on flying status and receive an increase of 50% in their pay. The pay is "velvet" and will be according to the following table:

Grade	Non-flying Status	Flying Status.
Master Electrician	$81.00 a month	$121.50 a month
Sergeant 1st Class	51.00 a month	76.50 a month
Chauffeur, 1st Class	51.00 a month	76.50 a month
Sergeant	44.00 a month	66.00 a month
Chauffeur	44.00 a month	66.00 a month
Corporal	36.00 a month	54.00 a month
Private, 1st Class	33.00 a month	49.00 a month
Private	30.00 a month	45.00 a month

Opportunities for promotion are excellent. In a photographic section there will be a comparatively large number of non-commissioned offices of the grades shown in the table. After one year's service the unmarried soldier who is under thirty years of age, is a citizen of the United States, is physically sound and of good moral character, is eligible to compete for provisional appointment as Second Lieutenant and thus begin a career for life, if he so desires, as an army officer.

Men who have served in the regular army or in the emergency army are privileged to enlist for one year or for three years (as they choose) without being listed thereafter in the reserve as available for future service if necessary. Those who have never served in the army may enlist for three years.

Vacancies exist in aerial photographic units or sections in Honolulu, Hawaii, Philippine Islands, Panama and in different parts of the United States and therefore there is opportunity for varied travel. With this and with liberal furlough privileges during peace, free food, clothing, lodging, medical attention and healthful recreation and a steady job with no lay-offs, the wide-awake young man will realize that a very attractive offer is being made to him.

If you decide to enlist in this attractive branch of the army, you should apply to the nearest army recruiting officer. Recruits will eventually be sent to the Aerial Photographic Recruit Depot at Langley Field, Hampton, Virginia for instruction in photography.

If information is desired in addition to that furnished by the recruiting Officer, write to the Office of the Director of Air Service, U. S. Army, Photographic Branch, Washington, D. C.

LABOR PRICES AND LABOR SAVING.

The biggest problem we have to solve in connection with industrial revival and the resumption of building operations, is found in the question of the re-adjustment of values, and in this question of values the biggest factor is that of wages. Already representatives of labor have asserted publicly that they will fight any and every effort to reduce wages below the war standard, which as we know is the highest ever reached in this or any other country. But, as one authority puts it, the union wage scale tells only half the story. The other half is told by the degree of employment or unemployment. High wages without employment does labor no good, nor does it help produce the necessities and luxuries of life. Now no man wants to see low wages just for the sake of having them low, nor does the right thinking man desire to see labor poorly paid. We all want to prosper and to see the other fellow prosper too. The question is, how can we do it?

The one practical answer is this: for labor to be highly paid it must be highly productive. And as a rule that is where we shine in this country, we have more producing capacity per man than any country in the world, and often at higher wages can sell manufactured goods in competition with other countries. It is in the increasing of man power capacity that we have one of the greatest accomplishments of democracy. How? Partly by the enterprise and vigor begotten in this great free country, but largely through inventive genius and its resultant product, labor saving machinery and devices. If we are to keep the price of labor at a high level, and yet keep the price of clay products low enough to encourage their wide use we must find the way through labor saving equipment that will increase the producing capacity per man.

TILE-MAKING IN MYSORE PROVINCE.

By Mr. E. A. Burrows, Tile Expert to Mysore Government and Member of British Institute of Clayworkers.

TILE-MAKING in Mysore, viz., the manufacture of Mangalore and Model Interlocking Roofing Tiles, appears to be divided into three distinct methods of manufacture. First, the cottage industry. Secondly, the small factory of limited capital, and thirdly, the larger factory with up-to-date machinery and plant. The reason for dividing them into three distinct divisions is that the manufacturer of tiles in each division is carried on by different methods.

Cottage Industry.—Although I have visited many places in Mysore where tile-making is carried on as a cottage industry, I can say that both theoretically and practically such an industry should not exist. The cottage industry for the manufacture of flower-pots and chatties no doubt fulfills a local want and justifies its existence, but the manufacture of interlocking tiles is a specialized manufacture and needs special plant and machinery which is entirely beyond the reach of the owners of these cottage industries, and with their limited plan the finished manufactured article is wholly wanting in the qualities a good tile should possess, and it is a waste of time visiting these factories as advice given can, for obvious reasons, never be carried out.

A description of a typical cottage tile-factory is as follows:

The clay is ground by a stone roller which runs round on a circle of flat flag stones drawn by bullocks, in the manner of a mortar mill, with the result that the quality of the clay cannot be guaranteed free from stones or hard lumps. Even one piece of stone one-fourth inch diameter is enough to cause the destruction of the tile into which it is incorporated. As to the quantity of clay ground, it is ridicuously small. I have seen a good pug-mill or clay-grinding mill in an up-to-date factory grind as much clay in twenty minutes as this bullock will grind in twenty-four hours, with the certainty that the clay contains no stones which will damage the tiles.

The rest of the plant is on a par with this. There is usually one hand press; this press is the most costly part of the plant of the cottage factory, and may cost about Rs. 600* if purchased new. Then there are the tile-drying frames which are more often than not quite useless for drying straight tiles on, being made of any kind of timber which comes to hand.

Then regarding the kiln, it is usually of the most primitive type and in some cases only consists of four thin walls in which it is a wonder that any heat at all can be obtained, and which violates all the recognized principles of burning tiles. So it is no wonder that the burnt tiles are absolutely useless for good building work. As to any profit from the manufacture of tiles by cottage industries, it is practically non-existent. Tempted by high prices in their locality and by the difference in the cost of manufacturing tiles and the sale price in up-to-date factories, people start these small cottage industries, hoping for large profits, but they do not take into consideration the bad quality of the tiles when pro-

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(*A Rupee is the equivalent of about 37 cents.)

duced nor the losses in manufacture by these wasteful methods, so that the hoped for profit turns out a dead loss.

The Factory with Limited Capital.—By this I mean the owners of tile factories with a capital of Rs. 50,000 approximately. With such a capital first-class tiles may be manufactured, and even good profits can be obtained provided the local demand is good and reasonably good prices be got for the tiles in the local markets. Of course, the output of tiles is strictly limited and in the most favorable conditions would not exceed 100,000 of tiles monthly.

From the profits they may also gradually enlarge the factory, but there is one consideration which makes it unwise to recommend this type of factory, and that is that they can never compete in open markets with the up-to-date type of factory with a commencing capital of one-and-a-half to two hundred thousand. The second type of factory is limited. It may be up-to-date in its motor power, its presses and its drying arrangements, but once this type of factory is decided on and built, it means that if in later years the firm wish to extend their factory and bring it up-to-date, it can only be done at the expense of pulling down the kilns for burning tiles and building an up-to-date continuous kiln, in place of the small kilns of intermittent type. This is a serious matter and means a tremendous loss to the firm, and yet the difference in the cost of burning tiles in the latest continuous kilns and the small intermittent kilns is so great and the advantage in other ways so many that the cost of a continuous kiln can be covered in two or three years through more economy in working costs. For instance, the cost of a continuous kiln is between Rs. 20,000 and Rs. 30,000 according to the size of the continuous kiln including a tall chimney, 120 to 150 feet high, and the drying sheds which in this system are built over and around the continuous kiln so as to take advantage of the heat radiated from the kiln during burning will cost from Rs. 20,00 to Rs. 30,000.

Such a kiln and drying shed will burn tiles with an expenditure of 7 cwt. to 8 cwt. of wood fuel; whereas, the kilns in the smaller factories of intermittent type burn approximately 20 cwt. of fuel per per thousand tiles. Taking wood fuel at Rs. 10 per ton as in Mysore, the saving, of at least Rs. 6 per 1,000 tiles on an average output of 200,000 of tiles per month, would be Rs. 14,000 annually. Another consideration is that by using one-third the amount of fuel, the cost of fuel is not likely to rise so much in value. It is already a very high rate in Mysore City, Rs. 10 to 12 per ton, whereas in the factories on the West Coast it can be procured for Rs. 5-8-0 per ton. This also affects the poor people in the districts and is a good reason why the second kind of factory with limited capital should for economic reasons not be allowed.

The factory with limited capital has also to put up with further disadvantages, as this type of factory is usually a scattered arrangement of kilns and drying sheds. The transport costs are very heavy, also the work is not regular; one day a lot of tiles will be unloaded from the kilns, the next day nothing. Losses in transport and irregularity of working may easily reach Rs. 5,000 annually, on 200,000 monthly. tween two factories of equal output of 2,400,000 annually, one factory working by gradual extension and intermittent kilns, and the other factory well planned out at the beginning with the full capital of 100,000 to 150,000 of rupees. With all the above considerations in view, it is both wasteful and very risky to start a tile works with a small capital.

The Third Type of Factory

With a capital of Rs. 100,000 to 150,000 it is all straightforward work in the construction and any extension in the future requires no demolition of present kilns or replacement of machinery, as each factory designated on this principle constitute a separate unit and, if necessary, can be dplicated according to the demand for tiles. One instance of this is Henke's Tile Works, Feroke, on the Malabar Coast. It contains three such units. The only instance we have in Mysore is the City Brick and Tile Works, Bangalore, containing one unit. The Mysore Tile Works, in Mysore City, started work as a tile works of the second class. Now the demand for their tiles being very great, they are now faced with the aforesaid difficulty of abandoning their present plant and the advisability of building a new plant on up-to-date lines with the full amount of capital required for one up-to-date unit.

Quality of Clay.

In constructing a new factory special attention should be paid to this and only a practical expert's advice should be taken and the prospective company should avoid going to any expense in plant or buildings unless the tile expert can produce good tiles from the local clays. This is the only safe proceeding. No tile expert who values his reputation would advise the expenditure of money on plant and machinery until he could produce for exhibition such tiles. Fortunately in Mysore, through the help of the Mysore Government, such advice is readily available, whereas in most districts outside Mysore, the jealousy of manufacturers makes it almost impossible to get new clays tested under up-to-date conditions. I know a factory outside of Mysore Province with unlimited capital which failed entirely because the advice of a tile expert was not taken at the very commencement before any plant was erected, after a great part of the plant was erected, the advice of the tile expert was obtained and he informed them that the clay was useless to make good tiles, but for obvious reasons at this late stage his advice could not be acted on.

As a result of inquiries instituted by the Bombay Indigenous Industries Committee into the possibilities of developing the roofing tile industry in the neighborhood of Bombay, the following localities have been suggested by the Pottery Department of the J. J. School of Art as being the most suitable places:—Khatalvada in the Umbergaon Taluka of the Thana Collectorate; Vada, Parli and Gorah in the Vada Taluka of the Thana Collectorate; Marol in the Salsette Taluka, and Nagothna in the Pen Taluka, of the Kolaba Collectorate; Mandangad and Jalgaon in the Dpoli Taluka, Khed in the Khed Taluka and Rajapur in the Rajapur Taluka of the Ratnagiri Collectorate.

An estimate has been prepared by Mr. Fern, Superintendent of Pottery, J. J. School of Art, for a power factory turning out between 4,000 and 6,000 tiles a day, which is considered to be the least number that can profitably be turned out by a concern on moderate pretensions. It is estimated that the cost of the necessary plant, most of which can be manufactured in this country, would be about 50,000 rupees, adding 30 per cent. to pre-war prices; to this must be added the cost of the site. The cost of running it, including depreciation at 10 per cent, and interest on capital at 4 per cent.; would be about the same. The net profits of such a factory, which would work for about 300 days a year, are estimated at not less than 12 per cent.

A smaller factory without power-driven machinery and turning out about 1,000 tiles a day, would cost, exclusive of site, about Rs. 20,000, and could be run at an approximate cost of Rs. 14,000 per annum. It would, however, not be able to work for more than eight months a year and would have to sell its tiles at a higher rate than the larger factory to make a net profit of 12 per cent.

Details of cost of both types of factory can be obtained either from the Secretary, Indigenous Industries Committee, or from the Superintendent, Pottery Department, J. J. School of Art, Bombay, the latter of whom will also give technical advice free of charge.—Mysore Economic Journal.

CORRESPOND-ENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Selling all the Brick They can Make.

Editor The Clay-Worker:

Enclosed find money order for subscription to The Clay-Worker to March, 1921. We are very busy making brick, and although the market is rather quiet, we expect to sell all we make. Our output amounts to about 2,000,000 a season; common sand mold brick.

Very respectfully,
HERMAN KOESTER, Supt.
Norwalk Brick & Stone Co.

English Clayworkers Grateful for Courtesies.

Dear Mr. Randall:

May I, through the medium of The Clay-Worker, express my deep appreciation of all the kindness, courtesy and information that has been extended to me by the many clayworkers I have been privileged to meet, both in the United States and Canada. In leaving the country, I wish for the great clay industry a period of great prosperity and good will.

Faithfully yours,
Manchester, England.

Mr. Gregory Optimistic for the Future.

My Dear Randall:

I am glad to advise you that our business is coming back in fine shape, both brick and terra cotta. We have more terra cotta business already booked this season than we had all last year, and the prospects are good for more. We are also getting quite a lot of orders for paving brick, and it begins to look like old times once more. Believe after they get matters straightened out over in Paris, and the big boss gets back home, business will settle down once more.

With kindest regards, Yours very truly,
M. E. GREGORY.

High Prices of Labor, Fuel, Etc., Swallow Profits.

Editor The Clay-Worker:

Enclosed find my subscription to The Clay-Worker. Sorry to say we have not made any brick since last August. The high prices of coal, labor, oil, and other supplies takes all the profits, and as we cannot raise the prices on brick equivalent to increased cost, we figure it is better to be idle than work for nothing. We are going to wait until conditions change for the better. With best regards.

Respectfully,
Kearney, Neb. HIBBERD BRICK CO.

New Orleans Brick Men Exonerated on Charge of Profiteering.

Dear Friend Randall:

We have started up our brickyard at last, and hope to be able to keep same in operation, although the building trade is kicking out of the traces on account of the increased cost of all materials. We have just been investigated for profiteering, by a comittee appointed by the Mayor of New Orleans, and all of us have been exonerated from the charge. I hope this will settle the proposed owners of buildings and get them down to business.

Sorry I will not be able to attend the convention of the American Society for Testing Materials at Atlantic City this month, but have planned a trip to Yellowstone Park with my family, leaving the first week in July.

With my very best wishes to yourself and family, I am

Yours very truly,
Slidell, La. F. SALMEN.

Building Business Good in Memphis.

Dear Mr. Randall:

Enclosed find my check for $2.00, covering my subscription to The Clay-Worker for another year.

Business certainly is booming in Memphis, the best city in the South. My four years here has convinced me that opportunities for northern capital are greater in the South than elsewhere. The brick business is especially good, and growing more so each year by reason of the timber scarcity.

"The "Build Now" campaign is really too strong for the brick production in this territory, commons selling at $17.00, and face brick at $28.00 to $30.00; the latter price being paid for brick shipped in.

With kindest personal regards,
SOUTHERN ENTHUSIAST.

Building Boom in Arkansas.

Editor The Clay-Worker:

Forth Smith has a building boom on right now. Many beautiful brick residences are being built in addition to a number of business houses, and construction work will soon be started on a large brick hotel and opera house. A seventeen-span bridge is being built across the Arkansas river at this point, and The Fort Smith Brick Co., is very busy although skilled labor and brickyard hands are very scarce. The company has just installed a ninety-ton steam shovel.

Fort Smith, Ark. K. A. J.

Virginia Brickmakers Find Ready sale for Product.

Editor The Clay-Worker:

We are enclosing check for renewal of our subscription to your much valued Clay-Worker. There are no new brick plants being built in this vicinity. Last year we had about all we could do, under the restrictions of the War Board, but we have been working this season at full capacity, and selling all we make with indications for increased building. We had made a number of improvements to our plant and so were ready to take care of our orders.

Yours very truly,
WILLIAMSON & HEDGECOCK.
Martinsville, Va.

A New Alabama Brick Plant.

Editor Clay-Worker:

Pardon our delay in sending the $2.00 for renewal to Clay-Worker, but the writer has been absent several days, visiting our new location 16 miles north of Mobile, Ala., on the M. & O. R. R.

We will manufacture common building brick at present, and hope to get "rolling 'em out" before many weeks go by. We expect to install most of the machines we now have, but there will be several purchases made for machines to work in connection with the ones we used in our plant here. We will start rather "easy" or "small" making about 25 to 30 thousand per 10 hours.

From time to time, we hope to make additions to our plant, and may add our pottery machinery on the side, but building material will be mostly what we will manufacture.

May we ask, Mr. Randall, WHY some of the machinery people have "raised prices" on their machines, OVER prices offered two or three months ago? We were, and are yet, inclined to think that prices should either remain stationary or decline, rather than advance.

Brick are selling around Mobile at from $13.50 to $15.00 per M, in cars, f. o. b. Mobile, but even before we turn a wheel, some of our friends (?) want us to "cut" prices, and get in "bad" with all the brickmakers in the country, but we can't see it that way.

Very truly yours,
DAPHNE POTTERY CO.
H. G. Holland, Mgr.

BIG WESTERN CLAY PLANT CHANGES HANDS.

Control of the Washington Brick Lime and Sewer Pipe Company has passed from J. H. Spear and members of his family to A. B. Fosseen, H. F. Luhman, W. E. Coleman and D. C. VanBrunt, all of Yakima and Victor Piolet of Spokane, present sales manager of the company. The company is capitalized at $2,000,000. J. H. Spear, president and organizer of the company, plans to retire from active business after thirty-one years in Spokane, and his son, L. H. Spear, also withdraws as secretary and treasurer. Mr. Fosseen, Mr. Piollet and Mr. VanBrundt will be actively in charge of the company's operations.

Under the reorganization the officers will be: President, A. B. Fosseen; vice-president and sales manager, V. Piollet; treasurer, D. C. VanBrundt; secretary, Charles P. Lund. The trustees will be M. Poilet, Mr. Lund, Mr. Luhman, of Ackley, Iowa. Others will probably be added later.

The company will be continued under the old name, but the new owners plan to extend the scope of its operations. It will engage on a large scale in the manufacture and sale of all classes of clay products and building material.

At present the company operates a face brick and fire brick plant at Clayton, a terra cotta plant at Clayton, a sewer pipe plant at Spear, five miles east of Spakan on the O. W R. & N., a common brick plant at Freeman and a lime plant at Bayview, Idaho. It will employ about 170 men now, but the number will be increased at an early date. The Freeman plant, now idle, will be opened and the company expects to have all its plants operating at full capacity at an early date.

Mr, Spear is the pioneer clay products manufacturer of the Inland Empire. In 1888 he began operations with a brick yard in what is now Cannon Hill Park. He organized the old Washington Brick, Lime and Manufacturing Company, which was active for twenty years with him as president, up to 1910, when it was absorbed by the new Washington Brick, Lime and Sewer Pipe Company, of which he became president, holding the position ever since.

FIRE BRICK INTERESTS CONSOLIDATE.

The Eastern Refractories Company has been organized with headquarters in Bellefontaine, Pa. This company has taken over the Center Brick and Clay Company, the Superior Silica Brick Company, the McCean Fire Brick Company, and the Big Level Land and Clay Company of Mt. Jewett, Pa., and the Snow Shoe Fire Brick Company.

The officers of this company are: President, James F. Stott, Philipsburg; vice-president and chairman of board of directors, Ellis L. Orvis, of Bellefonte; secretary and treasurer, Ives L. Harvey, of Bellefonte; assistant secretary and treasurer, Jay E. LaBarre, of Bellefonte; general manager, J. Ellis Harvey; assistant general manager, A. M. Sloteman, Rock Haven; sales manager, J. E. Morgan, 438 Commercial Trust building, Philadelphia; assistant sales managers, J. H. Kelley and J. W. Dowling, 1214 Bessemer building, Pittsburgh. The first six of these officers have been identified with the fire brick business for some time and are well known in this community. M. J. E. Morgan has been with the Harbison-Walker Company for about sixteen years and has been their eastern sales manager for about eight years. Mr. W. H. Kelley was formerly in charge of fire brick with the Bethlehem Steel Company, but for the last eight years has been in the sales department of the Harbison-Walker Refractories Company. He is an expert on refractories. M. J. W. Dowling has been connected with the Harbison-Walker Refractories Company in the sales department for many years.

With this organization of experienced men, with the most up-to-date plants in the country and a practically inexhaustible supply of raw material, this new company will no doubt soon be one of the leading companies in the fire brick industries. It is proposed to enlarge the plants the company now owns and also build one or two new plants very soon.

PERSONAL MENTION.

Cleve Hartzell, who has been superintendent of the White Hall (Ill.) Drain Tile Co., has taken the position of superintendent of the White Hall Sewer Pipe and Stoneware Company.

W. N. Durbin, Anderson, Ind., one of the busiest men in Hoosierdom, took a day off during the Shrine meeting in Indianapolis to help the members of Murat Temple extend the glad hand to the visiting Nobles who came from all sections of the country. He stated that the Anderson Foundry & Machine Co. is quite busy with prospects of an increased volume of trade during the summer months. One deal for Berg presses and other machinery will necessitate a trip to Cuba in the near future.

Maurice C. Viele has acquired all of the stock of the North Adams Brick Co., whose plant is at Braydonville, Mass. Mr. Viele has been connected with the manufacture of brick for a number of years and for a long time was manager of the present company. The plant now has a capacity of 42,000 bricks a day, but it is Mr. Viele's intention to increase this output materially, as well as making improvements to the plant. The kilns of the company have long been regarded as modern in every detail, but improvements which have been brought forth in the recent past and which Mr. Viele intends to add to the present equipment of the concern will greatly increase facilities of the plant.

Charles N. Parks, who represented the International Clay Machinery Co., Dayton, O. at the Canadian Clayworkers' convention at Montreal, received a wire from the home office, directing him to prepare for a trip to South America to superintend the installation of brick and hollow ware machinery, in a plant now in course of construction. Several of the plants in the vicinity of Montreal are equipped with International machinery. Mr. Parks, whose pleasant face is pictured on page 691 of this issue, "chaperoned" a number of the delegates on a tour of inspection to same. Mr. Parks is one of the live wires in the clay machinery line.

If a farmer by underdraining and fertilizing can grow 30 bushels of wheat where formerly he only grew 15 he not only reduces the cost to himself, but it lessens materially the amount of manual labor involved, and that is an item of some importance these days.

The safe way is to figure on your coal costing the full price, then if you get part of the supply cheaper you will be that much ahead.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LXXI. JUNE, 1919. No. 7.

CURRENT COMMENT.

Now, let's go.

* * *

Yes, the United States is a going concern.

* * *

Sometimes the difference between right and wrong is made up mainly of who is doing it.

* * *

It is a good year to push the doctrine of brick buildings on the farm.

* * *

Man may not want much here below, but he wants it frequently and persistently.

* * *

A little worry now and then may be a good thing, but it is a good thing we can easily take on too much of.

* * *

One of the good things about brick is that it remains in service longer after the cost is forgotten than any other building material.

* * *

Advocates of government ownership of utilities will have a hard time finding a favorable audience till present experience in that line has been forgotten.

* * *

Some face brick must of necessity be shipped long distances, but with face brick as with common brick, more intensive cultivation of the home field will lessen competition and shorten the general average of freight hauls and cost.

* * *

The lumber people make a great use of house plan books for stimulating building. A good hint for the brick trade here is to cultivate the retail lumber dealer, and get in touch with the plan book folks so that brick may become a more important item in the plans and in the thoughts of the local dealer.

* * *

The general cry for better sanitation sounds like a call for more sewer pipe.

* * *

Business has been adjusting itself very nicely all around both with and without help.

* * *

Promoting more home building is not merely a popular pastime; it is a manifest public duty.

* * *

Motor truck delivery contributes to the localizing of brick sales, and to the reducing of competition for distant trade.

* * *

The trinity of transportation is waterways, railways and roadways, and when we get enough of the latter maybe it won't matter so much about the other two.

* * *

Some of the advocates of the open shop policy feel that the government authorities have unnecessarily hurt their cause in the methods followed in handling labor problems.

* * *

A double question of the day is, how to produce more brick, and more bricklayers, at a cost that will satisfy the prospective builder and make the wheels of the building industry hum?

* * *

There seems no question but what we are to have a record year in road building, and this means lots of work for rock crushers and a bigger trade in cement. It should also mean opportunities for drain tile and for paving brick.

* * *

There is a difference between friendly co-operation in business and illegal collusion, but some of the things now classed as illegal should be made legal under proper supervision.

* * *

From being warned to help prevent an army of unemployed we are now being told to expect a great shortage of labor during the next few years. Somewhere between the two extreme guesses is a happy medium.

REDUCING THE OVERHEAD.

Not only is effort called for these days to reduce what is commonly termed productive cost on account of higher prices all around, but the time is also here for a pruning of overhead costs. In the days of propaganda for building up a realization of the full measure of costs there was a pretty general disposition to load the overhead end heavily. Now the time has come to try a little unloading, to put efficiency and labor saving devices to work in the office as well as in the plant. Antiquated methods and out-of-date equipment are a cost burden in the office as well as in the factory, and it is possible that when interest is once aroused many leaks can be found and stopped that have added unnecessarily to the burden of overhead.

THE SACRIFICE TO FIRE.

We have had from time to time impressive figures showing the annual money loss by fire, but the most impressive reminder of the unnecessary sacrifice to fire is shown in a recent advertisements, a full page in the Saturday Evening Post, by the National Board of Fire Underwriters, 76 William St., New York. There is a pictorial portrayal of a great mass of people, men, women and children, with the headline, "Shall They be Sacrificed to Fire?" Following an outline of the great fire losses that are preventable, and a statement of what the board is doing in the way of co-operation to reduce fire loss is the statement that a booklet containing information about how to protect the home from fire loss will be furnished free. It is a striking and impressive illustration of the need for using more fireproof material in building operations.

BRICK AND BRICK MACHINERY IN ENGLAND.

England has quite a job on hands in providing necessary housing for its people, and whether or not the taking over of the undertaking by government authorities is the best solution, the one important point to our brick machinery people in the consular reports about it is found in the great call for brick, and machinery with which to produce them. A recent consular report from London says that the local government board is said to have given orders for thousands of millions of brick. The brick yards seem to be simply swamped with orders, and to be in urgent need of machinery and equipment that will save labor and increase and speed up production.

TO HELP FINANCE HOME BUILDING.

Financing the home builder has long been an important factor in efforts to promote home owning and home building, and now there is a rational plan up for government aid in this. Heretofore the greatest assistance for the home builder has come through the building and loan associations, and it is these organizations through which Uncle Sam is planning to render help. A recent survey by the U. S. Department of Labor indicated that half or more of the building and loan associations had more calls for loans than they have funds available, so a bill has been prepared by this department and introduced in congress to create a Federal Home Loan Board and Home Loan banks. The idea is a modification of the Farm Loan Bank plan, with some of the characteristics of the Federal Reserve Bank system. The purpose is to make loans through groups of Building and Loan Associations on the approved collateral of such associations, and it is figured that in this way about $2,000,000,000 of assets of such associations would be made immediately available for home building.

MAKING BURNING MORE POSITIVE.

The clayworking industry has reached the point of more applied science in the everyday work, and the result is more foreknowledge and positiveness as to results. It is no longer sufficient to send the youngsters to college and teach them ceramics, and to have clay and shale analyzed before developing its use. These things are good, but they don't go far enough. What the industry has long needed, and what it is taking on now, is more positiveness in the burning. This is obtained by a proper combination of temperature measuring and recording instruments and furnace and burning equipment which makes control practical. Where the combination has been worked out properly it not only means reasonably positive knowledge in advance of what may be expected from each kiln of ware, but it also means a higher and more uniform standard of product, less waste, and the elimination of soft brick and under-burning generally. Where the proper combination has not been worked out it is a good time to get busy at working it out.

SALESMANSHIP.

A whole lot of sins have been committed in the name of salesmanship, and in its guise a lot of fool ideas have been foisted upon the business world. But all that does not alter the fact that salesmanship is an important element in business development, and the still closer home fact that the brick industry as a whole has never been properly inoculated with the idea that selling calls for talent and the investment of money, which will bring returns.

Many a brick industry has run along and passed unto the second generation without the organization of any systematic or sustained order of salesmanship. In such cases they have simply supplied the demand and have not sounded the possibilities of business expansion by trying to enlarge the demand. This and the fact that they may have prospered is a strong attest of the need for and the qualities of the product, but it is no indication of a spirit of progress.

It does not matter much in the final analysis whether the machinery of salesmanship is made a part of the plant equipment or whether it is set up independently by some one else, the main thing is to get recognition into one's system of the need for salesmanship, and make provision for getting it into actions for it is salesmanship that paves the way to more rapid progress in business enlargement.

BUILDING OPERATIONS.

Building operations are gaining in headway and moving along now at a fairly encouraging rate. So far, however, they have not included as much of brick and tile as they should, quite a percentage of the work being in the smaller cities and towns, and of homes and small structure calling more for lumber than for clay products.

The demand for lumber has increased to the point where there is an actual shortage in some items, and prices have been advancing instead of receding as some hoped. The great work of the U. S. Department of Labor has been directed specifically to home building and the campaigns put on have emphasized the home element to the practical exclusion of everything else. The result is that while much good has been accomplished, especially in encouraging the building of modest homes, there has not been included in it the use of enough brick and tile.

In the larger cities many big building projects are desired and in prospect, and gradually this work is getting under way, but the cost is a handicap which hinders considerably. For example, an architect told of an instance in Chicago of the getting of preliminary estimates on about $93,000,000 worth of work which when these were in was shelved temporarily because of the unexpected high cost.

There is such an urgent need for buildings of all kinds that the work will go forward eventually regardless of cost, and the volume of operations is gaining headway right along that is encouraging even though there is considerable hesitancy.

TILE MARKET IN MEXICO.

Vice Consul John C. L. Drier, writes from Mexico City that there is a favorable market there for certain classes of glazed tiling for floors and walls. The most popular tiling, he thinks, is an English product 6 x 6 inches, but this is now very scarce, which makes a favorable opening for the introduction of offerings from the United States. In addition to tile for floors and walls another tile that it is thought would find favor is a flat, preferably red, slightly glazed tile to be used in building charcoal stoves, or brazeros, as they are called there. This tile is not made there and substitutes tried have so far proven unsatisfactory. The size is 6 x 6 inches, 1½ to 2 inches thick. Those interested can obtain a list of dealers in Mexico City from the Bureau of Foreign and Domestic Commerce, by referring to file No. 109,722.

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BURNT-CLAY INSULATING MATERIAL.

We are told of a new heat-insulating material whose chief ingredient is a kind of clay being developed in Sweden. This clay or "molera," is very porous; each grain seems to be hollow, and when burned is extremely light. The clay aggregate is said to be mixed with cork before burning. Its chief use is as a lagging for steam pipes and boilers, but it may also be used for sound proofing and for deadening the transmission of vibration.

A DEPARTMENT OF PUBLIC WORKS.

At a conference of technical societies held in Chicago recently, including engineering architecture, construction chemistry and geology a resolution was passed favoring the establishment of a National Department of Public Works, by grouping those government bureaus, services, commissions and other activities whose functions are predominantly engineering or architectural in character in what is now the Department of the Interior. This would include among other things the activities in road building, in waterway improvement, the Geological Survey, the Forest Service, and the Bureau of Standards.

THE HOTEL AS AN ITEM.

Home building is not the only thing that makes work and business and calls for expansion in the program of the day. We are told that $100,000,000 was spent last year in the erection of new hotels. and half that amount additional in furnishing them. To judge from experience and the reports of travelers this has not served to meet the needs of the day, for hotel accommodations are as scarce comparatively as homes and apartments. So hotel building ought to be quite an item during the next few years.

APPRECIATION FOR RICKETSON COLORS.

The Ricketson Paint Works, of Milwaukee, Wis., manufacturers of the "Never Fade" mortar colors and dry iron ore paints, received an order sometime since from W. R. Lane, a brick manufacturer of Walnut Ridge, Ark., who now writes them as follows: "I received your Red Color, and have made about 100,000 fine red brick, and am now putting up my first building. Everyone pronounces it the best looking wall in town."

HOW WAR HIT LIMESTONE.

A special bulletin of the U. S. Geological Survey says that the war's effect on building stone is strikingly shown by the greatly reduced sales of Indiana oolitic limestone, which finds a market in nearly every state in the Union. The total of this stone sold for building in 1918 was only 2,701,745 cubic feet, a decrease of 60 per cent. in quantity as compared with 1917. The hope is held out to stone people, however, that there will now be a revival in comparison with the slump that war caused.

PHILADELPHIA NEWS NOTES.

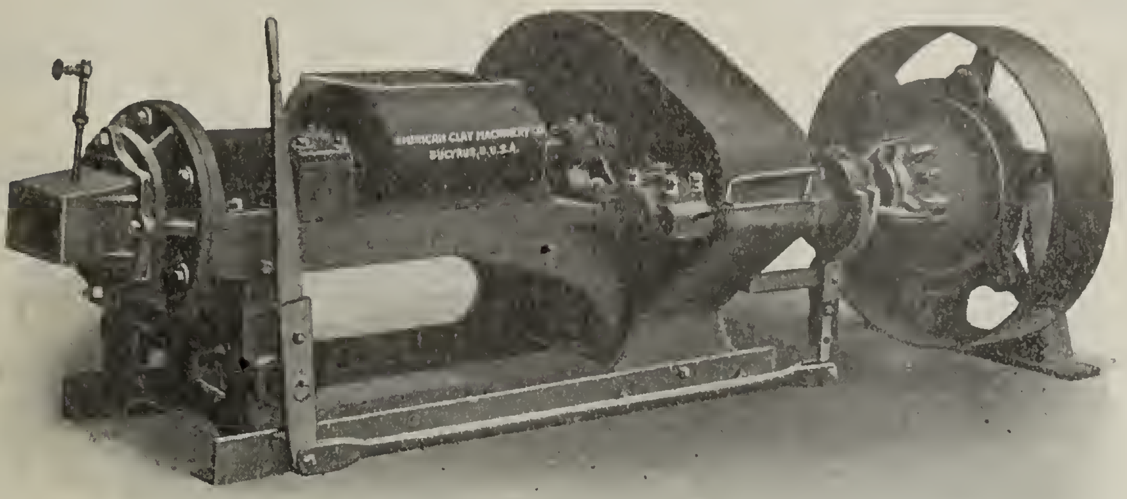
George Carnell, well-known brick machinery manufacturer of this city, reports business good with no little complaint about the present labor situation. Mr. Carnell says that it is almost impossible to get help and that they have been forced to abandon three of their eighteen yards.

William Conway, veteran brick manufacturer of the Quaker City, reports a fair demand for brick but is of the opinion that things could be better. M.r Conway says that as was the case last month he still has a large "want list" for labor and finds it virtually impossible to get the class of help he wants.

An encouraging report comes from the offices of the Thwing Instrument Company. Dr. Thwing says that they have just installed a complete recording pyrometer with a forty thermo at the plant of the Alliance Clay Product Company, Alliance, Ohio. President Wilcox, of the Alliance Company, visited the Thwing plant here during the month.

As Secretary Lane of the Interior Department has graphically pointed out in some of his speeches, the way to make real Americans out of our illiterate and foreign born is to first understand, and then teach them—teach them to read our language and to know what true Americanism stands for.

DO YOU use pyrometers?
Try Frink Sheathing Tubes
THEY have long life.
THEY are made from the best clay.
THEY transmit slight variations of temperature.
THEY require no supporting tubes.
THEY are worth more than they cost.
Ask for prices, today.
THE FRINK PYROMETER COMPANY
LANCASTER, OHIO, U. S. A.
You will enjoy FRINK HINTS each month. Sent without cost Ask for it.



American No. 328 Auger Machine

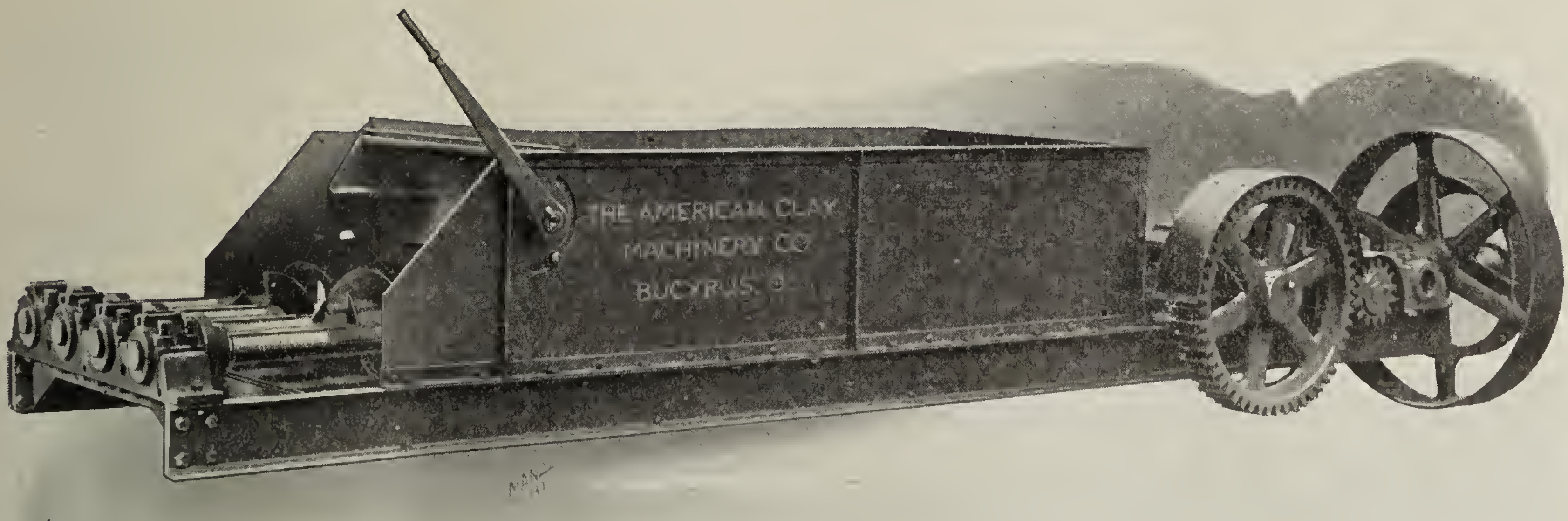
The No. 328 American Auger Machine is the smallest auger machine of the American Line and yet it is large enough to make a wide variety of ware. On brick, tile and other products it has a generous capacity. In construction and design it is right up to the quality of American machines of a larger size. Get a specification sheet giving the details on this machine. Sent on request.

American No. 274 Spiral Clay Feeder.

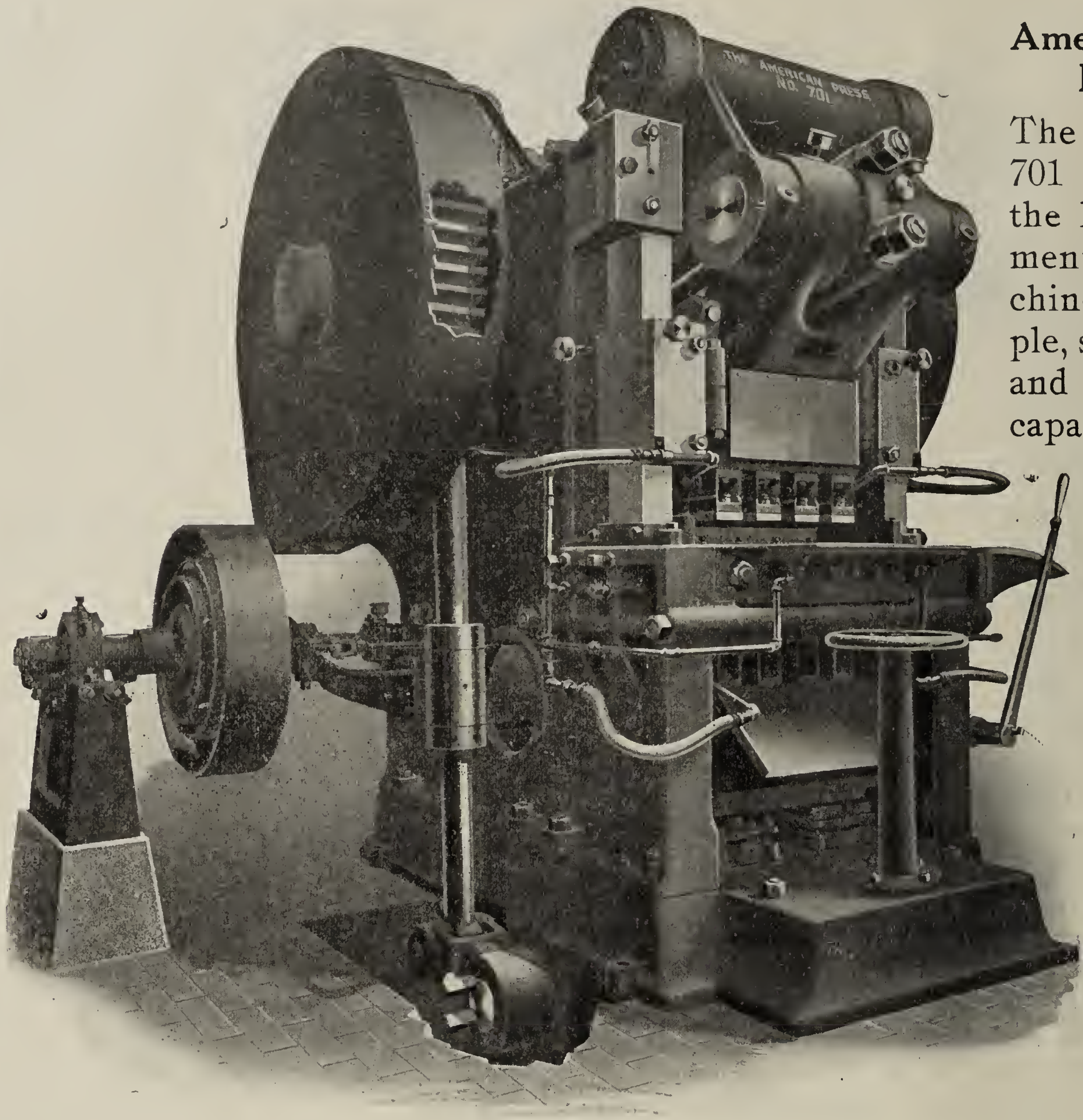
This No. 274 American Feeder will handle plastic clay direct from the bank or material that has been ground and screened. It has four spiral shafts and feeds thoroughly and evenly. It is well built. Ask for circular.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



American No. 274 Spiral Screw Feeder



American No. 701 Dry Press.

The American No. 701 Dry Press is the latest development of similar machines. It is simple, strong, durable and with a good capacity.

For Dry Press Brick and Sand-Lime Brick it has no superior.

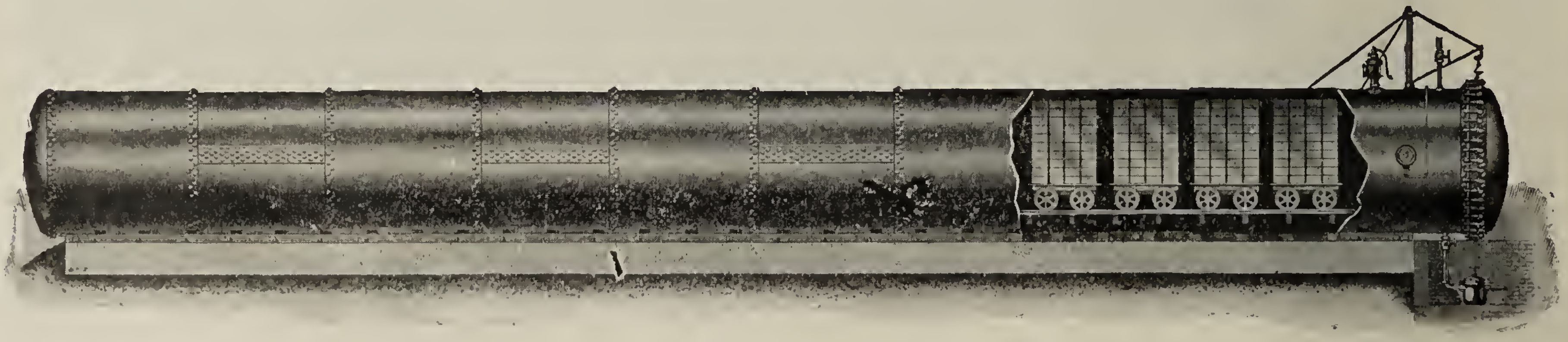
All parts are ample and strong. All bearings are generously proportioned.

Get full specifications.

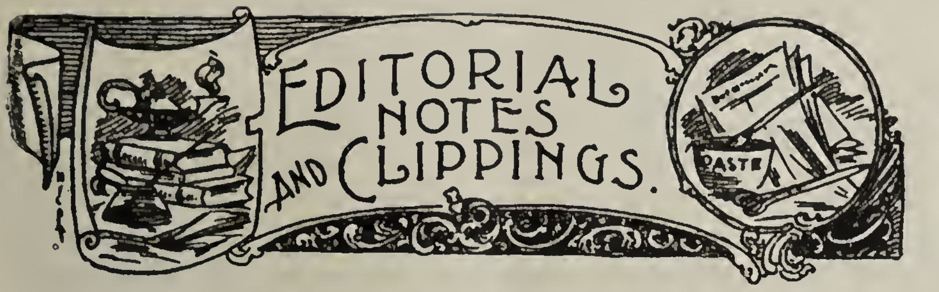
**The American Clay Machinery Co.
Bucyrus Ohio.**

Sand-Lime Brick Machinery

We make a full line of Sand-Lime Brick machinety. Get special catalogue.



The American Clay Machinery., Willoughby, Ohio.



EDITORIAL NOTES AND CLIPPINGS.

J. A. Spiker is at the head of a concern which expects to start a brick plant at Salt Lake City, Utah.

The Austin Clay Company has been organized at Augusta, Me., by D. A. Leland, R. W. Farris and C. L. Andrews.

The Terra Haute Vitrified Brick Company, Terre Haute, Ind., has increased its capital strock from $200,000 to $450,000.

Henry Seitt, an employe at the Lansing, Ill., plant of the Illinois Brick Co., was instantly killed when struck by a moving crane.

Sandford, N. C., has a new brick company, known as the Cumnock Brick Co., of which C. E. Teague is president. The company is capitalized at $100,000.

The new plant of the Poteau Brick Company at Poteau, Okla., started operations the first of the month. The plant is equipped throughout with modern machinery.

Fire which started from an overheated dryer of the North Iowa Brick & Tile Co.'s plant at Mason City, Iowa, caused a damage of $1.000. Fortunately the flames were confined to the dryer.

The plant of the Robinson Clay Products Company, located near New Brighton, Pa., was almost completely destroyed by fire, which evidently started from an overheated kiln, June 11. The loss is covered by insurance.

David E. Tracy of Harrisburg, Pa., purchased the plant of the Municipal Shale Brick & Block Co., at Martinsburg, W. Va., which was recently sold at auction. The plant will be improved and continued in operation.

The Sapulpa Pressed Brick Co., Sapulpa, Okla., write that they will build some kilns and make a number of other improvements to their plant, including the laying of a spur to the railroad to increase their shipping facilities.

In a recent letter enclosing subscription, E. D. Ellison of Blacklick, Ohio, writes that his plant is running full capacity, and that last year was also a good year for them, as they furnished quantities of brick for government buildings.

The Kivett Brick Company has been organized at Carthage, N. C. The officers of the company are president, H. C. Chisholm; vice-president, W. M. Kivett; secretary, W. G. Jennings; treasurer, W. G. Dalrymple; manager, John W. Kivett.

Fred J. Paige has been engaged by the Ogdensburg Brick & Tile Company at Ogdenburg, N. Y., to have charge of the plant, which is now in full operation. Prospects for the coming season are very good and the company is looking forward to a busy season.

The Riverton Brick & Tile Co., has been organized at Riverton, Wyo., and a new plant is now in process of construction. H. S. Goss, an experienced brick and tile man, is superintendent of the plant. The new company has contracts in sight calling for 2,000,000 brick.

Business is very good with the Table Rock Brick & Material Company at Table Rock, Neb., but Alex R. Batley, president and general manager writes they are badly in need of experienced help in the way of setters and tossers of brick and hollow tile. They pay from $4.50 to $5.00 a day.

Extensive improvements have been made at the plant of the Heron Lake (Minn.) Brick & Tile Works, including the installation of a clay crusher. This is in keeping with the policy of the company to keep the plant up-to-date in every particular. The daily capacity of the plant is 30,000 brick.

The property of the old Provo Pressed Brick Company, of Provo, Utah, has been leased from the present owners, the Provo Commercial Savings Bank, by Jesse Curtis, Frank Dyson, James Clayton, John Nelson, Joseph Reynauld, Ernest Long, William McArdle, G. H. Sizemore and C. D. Brown. These men are all former employes of the Provo Pressed Brick Company. The new company will be known as the Provo Brick & Tile Company. Jesse Curtis will be general manager, Frank Dyson, assistant manager, and James Clayton, secretary and treasurer.

Atlanta, Texas, wants a brick plant. They have good clay and an abundant supply of natural gas for fuel. Interested parties should address the Commercial Club.

Application for a charter for the Scottsville Brick Co., of Scottsville, Tenn., has been filed by J. Bailey Wray, A. F. Richards, A. J. Dunn, C. A. Webber and W. K. Johnson. The company is capitalized at $15,000.

E. S. Barkwill, president of the Barkwill-Farr Brick Company of Cleveland, Ohio, shot and seriously wounded a burglar in his home recently. Mr. Barkwill was awakened by a noise in an adjoining room and when the burglar tried to escape he shot him.

Saunders Clay Products Co,, St. Albans, W. Va., has been incorporated to operate in Kanawha county, capital stock $5.000. Incorporators, A. M. D. Hershberger, F. B. Bowen, of Clendennin; T. G. Saunders, of St. Albans, and B. H. Benham and Carl Henderson, of Charleston.

C. J. Hadden, president of the Land Trust Co., Atlanta, Ga., writes that he would like to correspond with parties desiring to establish a brick plant, as he has an excellent site with good shale, running water and unusual railroad facilities. Any one interested should address Mr. Hadden, 516 Grant Building, Atlanta.

The Vesper Clay Products Co., of Vesper, Wis., has been organized to manufacture building and drain tile. G. A. Perry is president of the company, C. R. Goldsworthy, secretary and G. O. Babcock, treasurer. The clay deposit it is estimated is sufficient to last the company for forty years or more.

The Yankee Hill Brick Company at its yards at Burnham, Neb., is preparing for an active season in the manufacture of building brick and hollow tile. During the last few months, large expenditures have been made at this plant increasing its equipment for manufacturing for storage room and facilities for handling the output.

C. H. Nold has been appointed district sales manager for the Harbison-Walker Refractories Co., Pittsburgh, with offices at 411 Morris building, Philadelphia. He succeeds J. E. Morgan, resigned. J. T. King, who has been connected with the Philadelphia office of the company for some time, will continue in that capacity.

As a result of the revival of building activities in Mexico the Monterey Brick Manufacturing Company, of Monterey, Mexico, has resumed operations on a large scale. The products of this plant are shipped to various parts of Mexico, and in pre-revolutionary times it did a large business in the sale of bricks in Cuba and the United States.

A patent which has been pending for some time in Washington, has just been granted to Herbert R. McCune, superintendent of the Decatur (Ill.) Brick Manufacturing Co. plant on a brick machine. This patent has been assigned to the brick company and is one which the company has been using for some time in the manufacturing of the Royal Hasier brick.

H. H. Dailey, H. G. Colton, B. F. Sinsheimer, W. B. Wiggins and P. M. Boyles, directors of the Molalla (Ore.) Fire Clay Company, filed for incorporation of the company and to change the name of the Dailey Clay Products Company. They will also move the main office of the company from Molalla to Portland, Ore. The capital stock of the company is $100,000.

Horace Purinton, one of the best known brick manufacturers of Maine, died at his home in Watertown, the latter part of May. Mr. Purinton was the senior member and treasurer of the Purinton Brick Manufacturing Co. He was a native of Maine and had been active in political circles, having served as Mayor of Waterville. He was prominent as a building contractor and built many brick structures in the state.

Edward Menges, of East Liverpool, O., has been re-elected president of the National Brotherhood of Operative Potters. The other officers are: Vice presidents, F. H. Hutchinson, of Trenton, N. J.; George Chadwick, of East Liverpool, O., Louis Driber, of Trenton, N. J.; Sheldon M. Moore, of Trenton, N. J.; George H. Cartlidge, of Trenton, N. J.; T. N. Woods, of Sebring, O.; and F. J. McCollough, of East Liverpool, O. John T. Wood, of East Liverpool was elected secretary treasurer. The opening date for the annual convention at Atlantic City has been set for July 5.

The Haws Refractory Company will build a plant at Johnstown, Pa., with a capacity of 100,000 brick per day.

A charter has been granted the Hazelton Brick Co. of Hazelton, Pa., of which H. W. Jacobs is president.

The Midcontinent Brick & Tile Co., of Tulsa Okla., has been incorporated by J. H. Sessing and others, with $50,000 capital stock.

R. B. Stephens and others of Cerro Gordo, N. C., have organized the Cerro Gordo Brick Company with $10,000 capital stock.

The Deegan Brick and Tile Company of Coal Grove, Ohio, has been incorporated with $50.000 capital stock. Among those interested are J. G., J. F., O. J. and M. F. Deegan, A. L. and M. D. Vass and D. M. Williams.

William Hemerle, an employe at the plant of the Windsor Brick Co., Akron, Ohio, was badly burned and the plant badly damaged by fire, which started from a producer gas furnace. Several carloads of coal was destroyed.

The Cleveland Builders and Supply and the Barkwill-Farr Co., Cleveland, Ohio, in a meeting of directors recently combined with the Camp Conduit Co., Cleveland. Brick products of the Camp Conduit Co., hereafter will be distributed to Cleveland, they said.

Because of the increased demand for its products, the plant of the Walla Walla Shope Brick Co., of Walla Walla, Wash., is being enlarged. Recent orders booked by the company include 125,000 brick for a new college at Walla Walla and a bank building at Milton, Wash.

William S. Carpenter, general manager of the Haggerty Brick Company, of Detroit, Mich., died at his home in that city June 7. Mr. Carpenter had resided in Detroit for twenty years and was prominent in Masonic circles and an active member of the Chamber of Commerce. He is survived by his wife and two sons and one daughter.

Construction work on the plant of the New Castle Mining & Clay Products Company is being pushed as rapidly as possible. One kiln is completed and the foundations for the others started. It is hoped to have the plant ready for operation about the first of August, with a daily capacity of 30,000 brick, which will be increased later to 90,000 per day.

Anticipating a heavy increase in building operations this year the Bend (Ore.) Brick & Lumber Company will increase its output for the season by approximately one million brick, making a total of 2,500,000 brick manufactured by this concern to take care of the city's construction needs for the year. Many residences as well as business blocks are being built of brick.

The Warren Brick Co., of Warren, Minn., of which Edward Lundgren is manager, has purchased an additional track of land containing a splendid deposit of clay. Additional equipment, including a brick conveyor, will be installed at the plant and a spur side track connecting with the Great Northern Railway will be put in, which will increase the company's shiping facilities.

The Ottawa Fire-Proofing Co., which was incorporated some time ago, and which bought the old Terra Cotta Tile works at Ottawa, Ill., has started work today with a force of twenty men. The plant has three kilns burning, and drain tile and hollow building tile will be the finished output of the works. The officers of the company are: President—W. A. Herricks, Vice-president—A. O. Anderson, vice-president and general manager—W. J. Hemmitt, secretary and treasurer—Fred W. Moore.

The Flint River Brick Company, of Albany, Ga., which started operations in 1910 with a yearly capacity of 5,000,000, has since that time tripled their yearly output, turning out last year 15,000,000 brick, many of which were used in buildings in the immediate vicinity. P. J. Brown, who is president of the company, and C. M. Shackelford, vice-president, are of the belief that with the final signing of peace terms and a general resumption of business activities, the output will be greatly increased over that of 1918.

THE BRICK SITUATION IN MASSACHUSETTS AND CONNECTICUT.

Robert E. Pray of Greenfield, Mass., started his plant early in the spring and is running to full capacity. James H. Gallagher, who has been superintendent for Charles C. Dyer's plant for seven years, has been engaged by Mr. Pray as superintendent. Mr. Dyer is in poor health and will not operate his plant all this summer, but together with Charles H. Leathe will spend the summer months at Otter river. Mr. Pray has a number of large jobs in prospect and told The Clay-Worker representative that he was more than pleased with the outlook for 1919.

Thomas Brothers at Turners' Falls started their plant just as soon as the weather permitted. Two kilns have been burned so far and they say the prospects are very good.

The two yards of the Northampton Brick Company at Northampton, are in full operation, as is the Hones Brick Co. on King street. Smith College will put up some new brick buildings and this will help the market.

At South Hadley Falls, near Holyoke, the yards of the Hampshire Brick Co., Lynch Bros. Brick Co., and O'Connell's Sons are all running full blast. They started the season with empty sheds.

The Holyoke Brick Company on Williamsett street, started before the frost was out of the ground and at this writing have made 3,000,000 brick.

Elmer K. Phillips of Holyoke has put his yard in fine shape, having built a new machine house and installed a new New Haven brick machine and motor. He had some brick on hand last year, but they all have been sold.

The yard of the estate of John J. Prew at Holyoke did not start up until May 15, but they are making up for lost time now.

The plant of the Springfield Brick Co., and the Forest Park yard at Springfield, Mass., is each running. The former is a three-machine plant and the latter which was closed all last year, operates two machines.

Brower & Best at Thompsonville, Conn., did not run at all last year, and have not started up so far this year. They are handicapped by having to haul all their brick to the freight depot, and Mr. Best states he will wait until better conditions prevail.

At Harford, Conn., the Wilson Brick Company is running full handed, with many orders on their books. The Nevels Bros. brick yard has been leased by the Sponzo Brick Co., for five years, and two kilns have been burnt, which is a pretty good record. The Michael Kane Brick Company is busy as can be and Mr. Kane told The Clay-Worker scribe that he never saw the brick business look any better. All of their brick are delivered by a Pierce-Arrow truck.

The plants of the Park Brick Co. and the Charter Oak Brick Co., at Elwood, have orders on hand to keep them running steady for several months.

At Berlin, Conn., all of the yards are in operation except that of John W. Hahn's and the Standard Brick Co. John Corbo has installed a new clay feeder at his plant, which he says takes the place of two men. It really seems like old times in Berlin. The C. P. Merwin Brick Co. was running their No. 5 New Haven machine.

At Middletown all the plants are running. The Tuttle Brick Co. is running all three of their plants, although help is rather scarce. Many foreigners are going back to the land of their birth.

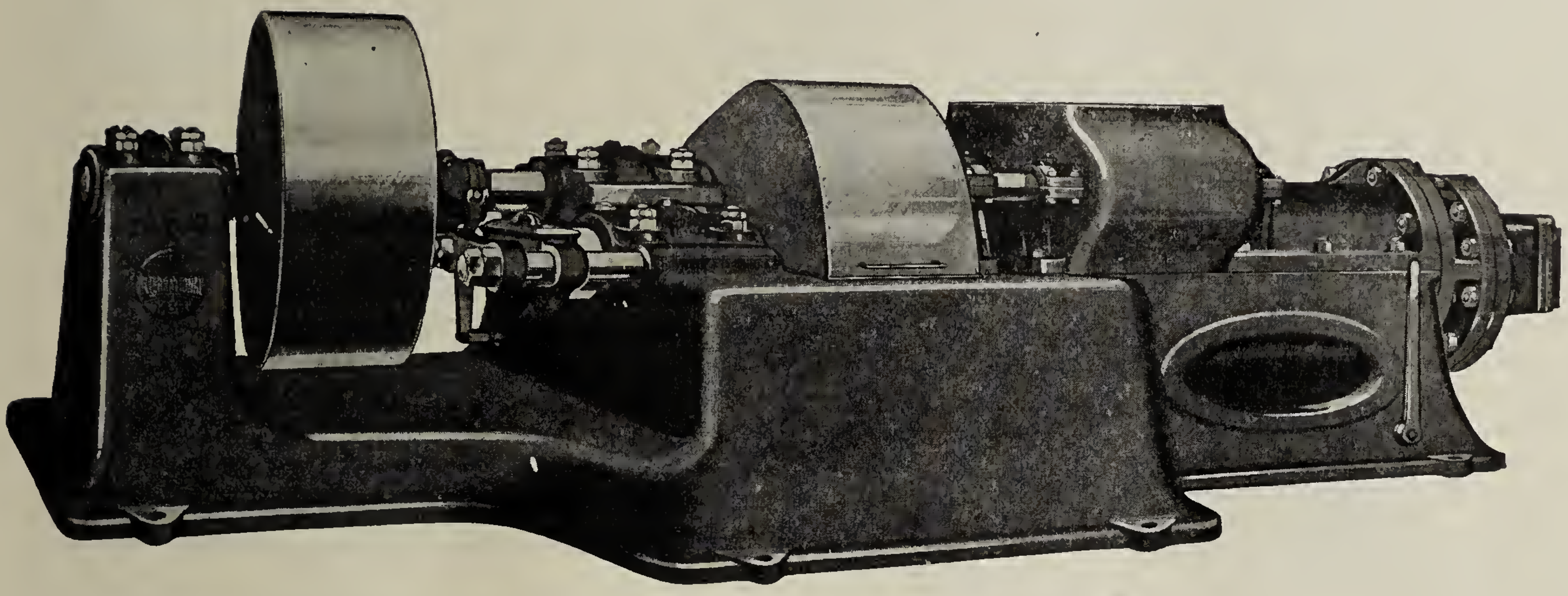
Charles W. King, general manager of the Central Connecticut Brick Company for the past six years has resigned, and purchased a lumber yard at Manchester, Conn. We wish Mr. King success in his new enterprise. Frank H. Helms succeeds Mr. King as manager, and says the month of May was the best month since the beginning of the war.

The yards at North Haven are all running to full capacity. The W. E. Davis & Company and F. I. Shares are each doing good business, with prospects good. They look for a big building boom by July 1.

At North Adams the outlook is exceptionally good, three large buildings will be erected there this summer, all of brick.

NUTMEG.

TWO CASTINGS
TWO SHAFTS
TWO GEARS



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Let us Tell You All About It

International Clay Machinery Co.

DAYTON, OHIO

BRICK AND BUILDING NEWS FROM EVANSVILLE AND SOUTHERN INDIANA.

BUILDING OPERATIONS in Evansville and other towns in southern Indiana are showing signs of new life since the putting over of the Victory Liberty Loan, and the building permits in Evansville for the month of June will show an increase over the month of May, which was a better than April. Brick manufacturers say that while they are not looking for anything like a boom in building, they do expect to see things steadily pick up from now until fall. Architects and contractors are busier than they were a month or two ago. Several manufacturing plants in Evansville are either building new additions or are planning the same. The Louisville and Nashville Railroad Co. has started improvements at Howell, a suburb of Evansville. A huge electric turntable is being built and within a short time work on a new brick roundhouse will be started, the improvements to cost something like $125,000. A few of the brick manufacturing plants in southern Indiana have been operated on pretty good time during the past month but some of the factories are running half time now. The trade outlook is regarded as fairly promising. In many towns in southern Indiana brick stocks are reported low. Prices are holding up well.

The first kiln of tile of the season was burned a few days ago at the Brinkman factory at Mt. Vernon, Ind. The tile was of excellent quality and some of it already has been thrown on the market.

James A. Hemenway, of Boonville, Ind., formerly United States senator from the state of Indiana; William Weyerbacher, a merchant of Boonville and Dr. T. D. Scales, a coal operator, were in Evansville a few days ago circulating a petition to have the public highway from Evansville to Boonville paved with brick. The petition received many signers and will be presented to the Indiana Highway Commission.

Controlling interest in the Bloomfield Brick Co., at Bloomfield, Ind. has been purchased by Claude E. Gregg, of Vincennes, former county attorney of Greene county; Ray Henley, an oil operator of Vincennes and Leslie G. Gee, an attorney of Lawrenceville, Ill. The consideration was $50,000, which includes all the interest held by Cyrus E. Davis, of Bloomfield. The plant has a capacity of 100,000 bricks a day and the plan of the new owners is to double the capacity. Vincennes has been selected as the headquarters for the new company.

Henry C. Kleymeyer, general manager of the Standard Brick Manufacturing Co., at Evansville, was one of the working members of the fifty teams that were appointed recently to wage the campaign in that city to raise a fund of money for the Boy Scouts. The campaign was a success, due to the fact that such men of the caliber of Mr. Kleymeyer comprised the teams.

The marriage ceremony of Miss Geneva Schuetter, of Jasper, Ind., and Theodore Wuetcher, of Huntingburg, Ind., was performed at St. Joseph's Church a few days ago. The bridegroom is connected with the Huntingburg Brick Manufacturing Co. and is one of the rising young business men of that city. Mr. and Mrs. Wuetcher will make their home in Huntingburg.

The various pottery plants in Evansville are being operated on steady time and in fact trade is reported to be much better than it was this time last year and the outlook for the year is very encouraging.

Henry Brinkman, known to his many friends as "Grandpa" Brinkman, said to be the oldest man living in Posey county, Ind., celebrated his ninety-fourth birthday at his home at Mt. Vernon a few days ago. He is one of the best known drain tile manufacturers in southern Indiana. In spite of his age he is quite active and takes a keen interest in all his business affairs. In 1869 he started a brick manufacturing plant in Mt. Vernon, the brick being made by hand. He gave this plant as much of his time as possible until 1875 when he quit the brick business and established a drain tile factory a short distance from Mt. Vernon and this factory has enjoyed a big trade for a number of years past.

Trade with the Huntingburg Pressed Brick Co., at Huntingburg, Ind., has been good for the past several months and the plant is being operated on full time with many nice orders coming in from time to time.

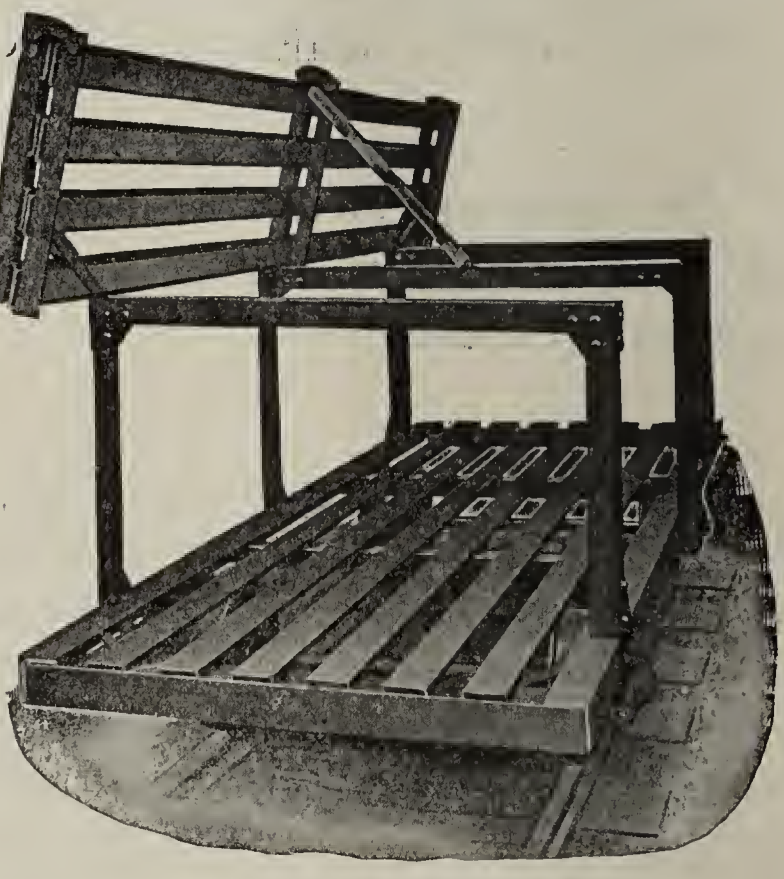
John Andres, secretary and treasurer of the Standard Brick Manufacturing Co., retired a few days ago as president of the Evansville Rotary Club, after serving in that capacity for the past year, during which time the membership of the organization was largely increased. Mr. Andres is one of the real "live wires" of Evansville and takes an interest in anything that has for its object the upbuilding of the city.

It is expected that certain parts of the Dixie Bee Line Highway from Danville, Ill., to Adams, Tenn., will be built of brick. A large delegation from Evansville, headed by Mayor Benjamin Bosse, president of the Dixie Bee Line Association, went to Indianapolis recently, together with delegations from Princeton, Vincennes and Terre Haute and appeared before the Indiana Highway Commission to ask that the state aid on the Dixie Bee Line road be given this year and that a bridge be built over the White river at Hazleton, thirty miles north of Evansville, this year. It is expected this request will be granted. It is understood that Governor James P. Goodrich is in favor of the plan. The Dixie Bee Line road will connect with the big Dixie highway at Adams, Tenn.

The board of public works at Evansville has recently ordered several streets in that city improved and brick will be the material used on some of the streets. Evansville did practically no work of this character during the world war but the street building program for this year is rather a large one.

Michael D. Helfrich, head of a large pottery at Evansville, who purchased a large section of timber land near Evansville several months ago, is getting ready to cut the timber from the land and after this is done he will sink a coal shaft. It is his plan to own and operate one of the most modern coal mines to be found in southern Indiana.

A HOOSIER.



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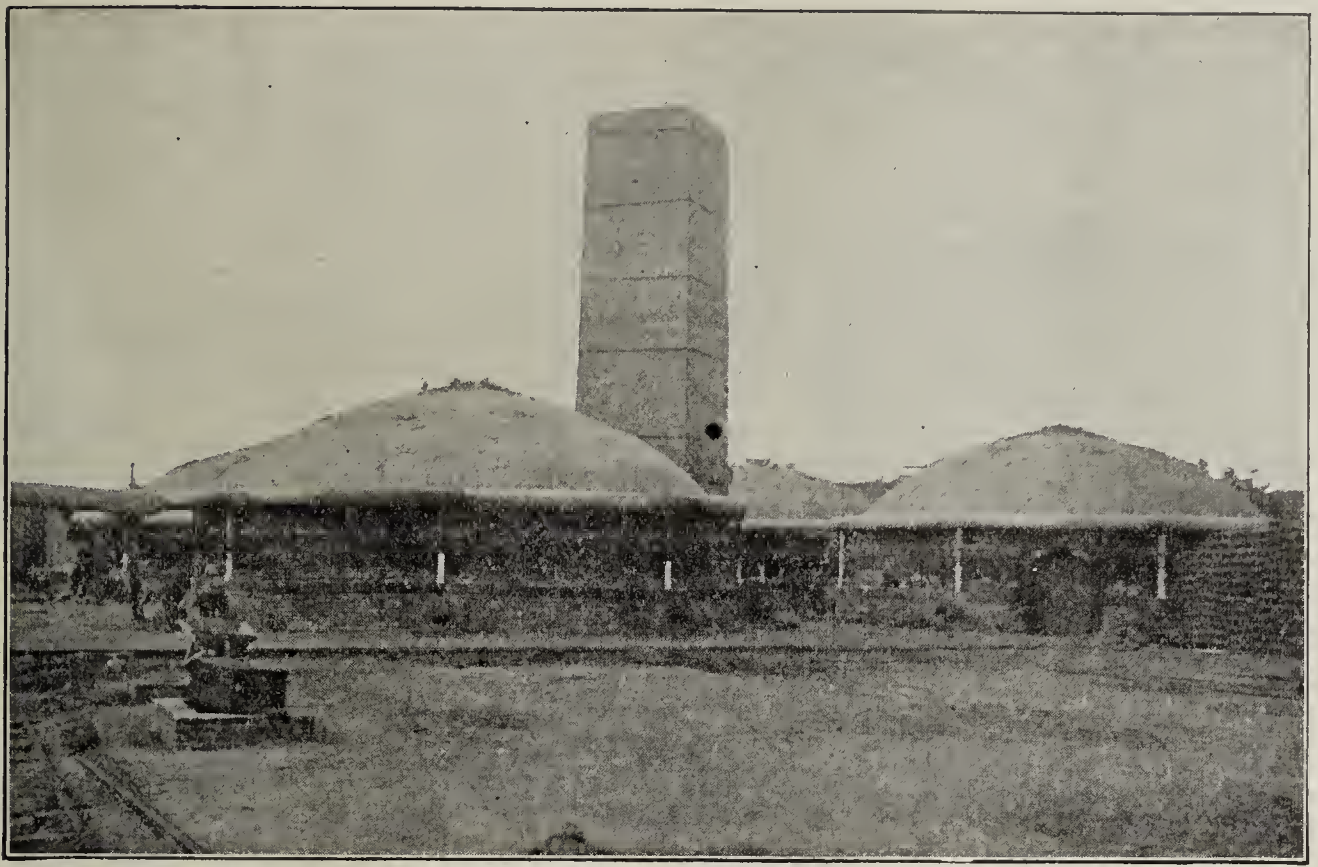

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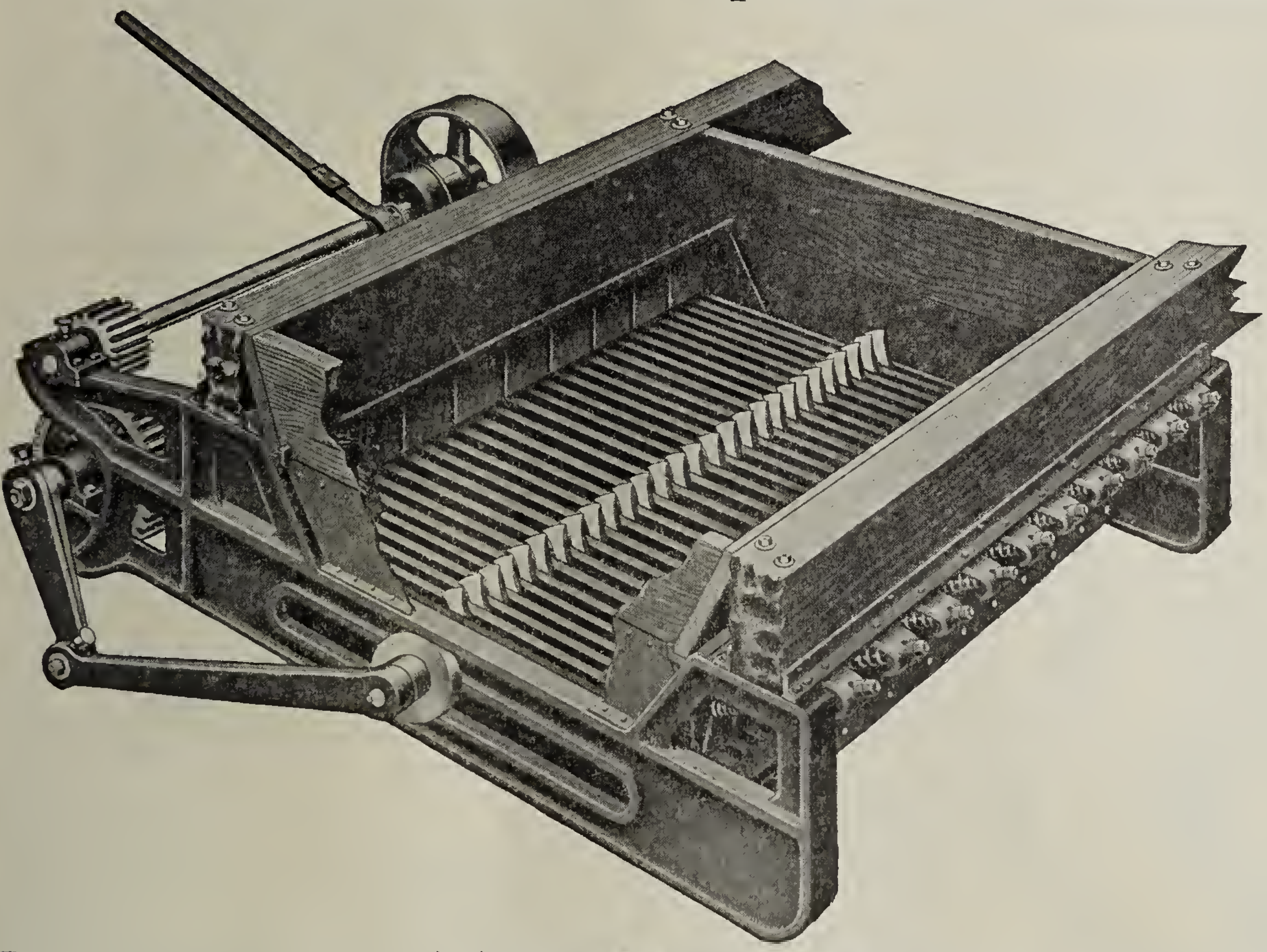

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If troubled with stones, roots, etc., in your clay operation there speaks for itself. You'll surely approve it.

Direct Selling Agents,
J. C. STEELE & SONS,
Complete Line of Clay-
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SEEN IN NEW JERSEY.

BUSINESS IS PICKING up all over New Jersey, and while it is not yet as active as it is normally, the improvement is sufficient to enable the brickmakers to see what is coming to them in the near future. Most of them have started their plants, and though they had a bad May, wet and cold, they have made a good start and their kilns are many of them smoking with the first burnings. Demand for brick has improved somewhat during the month, though, of course, it is not yet nearly up to normal. However, the fact that some improvement has come is of sufficient influence to make manufacturers feel much better. Prices still remain high. Hackensack makers are asking $15.00 or perhaps a shade more. In the yards around Paterson they are asking from $15.00 to $17.00, the latter delivered. At Mountainview they are asking $14.00 at the yards. In the Raritan district the price is from $14.00 to $16.00. Trenton is getting $15.00. Brick shipped to Newark and unloaded in the yards there are selling at around $15.00 to $16,00. On jobs the price is from $1.50 to $2.50 more in some localities. As high as $16.00 is asked by some jobbers, but these prices are principally for small lots. Hackensack makers sold some brick for small jobs in Paterson and vicinity, seven miles away and delivered the brick by truck for $16.00 or thereabouts. These were old brick, some of them of two years ago burning. The yards are clear now and new brick will shortly be ready for delivery. Most building interests look forward to better business in the near future.

The labor situation is looming large in the brick yards this spring. Recent statistics show that the labor cost has gone up to approximately $22.00 a week in the yards and is hard to get even at that price. That is an advance of about $7.00 a week since the war started in 1914. The situation doesn't improve as rapidly as manufacturers might wish, but many of them realize the lack of labor and that it is likely to be permanant are contemplating the addition of machinery to take the place of men.

The Sayre & Fisher Company, at Sayreville, have started operations in their repressed common brick plant which was closed down because of over-production sometime in January. The work will be continued through the season, the open yards to be used when weather permits. They have begun operations in the open yards already. When they closed in January their storage capacity was overtaxed because of the fact that brick were not selling. They do not depend altogether upon either water or rail though they have both facilities. New Brunswick, and other nearby centers where many brick are sold are supplied by motor. They find the delivery quicker, more certain and cheaper than the other ways.

In the Hackensack district the Hackensack Brick Company, Henry Gardner, I. E. Gardner and the Merhoff interests are all at work, the first burnings are laid up and the yards are full of brick drying ready for the next burning. Some of the yards are not yet under full headway, but they are getting in shape for work and where they have been able to secure help they have begun under full headway.

Edward Schamlz, a former well known manufacturer in the Hackensack district and Walter Schultz, of Jersey City, have taken the idle yard at Little Ferry, adjoining the Henry Gardner property, and will operate it this season. The yard was not opened at all last season. Both men are well known manufacturers and are assured of success.

The plant of the American Clay Products Company, South River, has begun operations with 125 employes, or about a quarter of the working force when the plant is under full headway.

Phillips Harper Company, of Trenton, have been given an order for sufficient brick to erect one hundred workmen's houses at the ship yards of the Merchandit's Shipbuilding Company at Briston, Penn. Nearly all the houses erected in this new town are of brick and all of the public buildings are also of brick. This firm is one of the new ones in the state, but it is going ahead with a rapidity which speaks volumes for its activity and the value of its products. It has associated with it Scott M. Fell, of the Fell & Moon Company, as consulting engineer. Wilson A. Philips is president and Frank W. Harper is secretary and treasurer. They make a full line of burned clay specialties and are increasing their output from week to week.

The Standard Brick Company, of Mountainview, has started its pumps and is getting its plant in shape for full operation this season. The pits are full of water and the yards were but little used last year, consequently it means considerable rehabilitation this season to get things going again. The firm has plenty of business usually, with its large orders from Paterson and Passaic, both of which are within easy reaching distance by motor. It makes a high grade of common brick.

A. L. B.

INCREASED KILN OUTPUT

Lack of temperature uniformity causes high burning losses. By insulating the crowns and walls of kilns with

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PREVENTS HEAT PENETRATION
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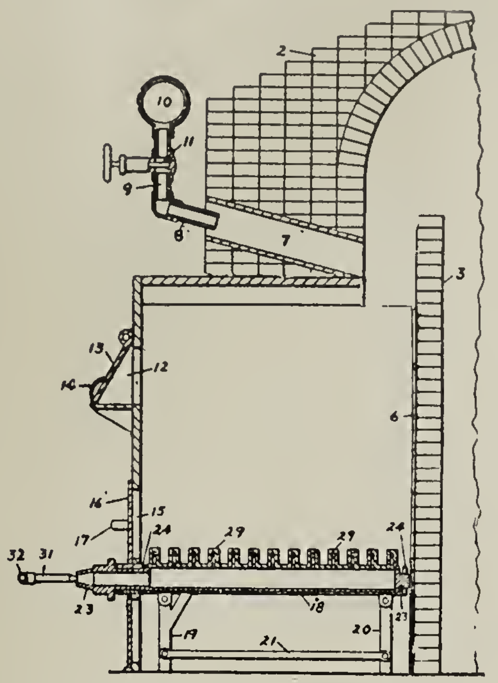

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We guarantee a greater saving of fuel than in any other method in use today. We guarantee a saving of time in burning of brick or hollow ware of 25 to 50 per cent., depending upon present burning conditions. We can use the cheapest grades of coal because our fire is supplied with air by use of steam blowers. We eliminate smoke by our secondary application of free air, thus assuring perfect combustion.

One of the most valuable features of the Producer Furnace is, at the beginning of the burn you can operate the fires as a furnace steam-blown, until the furnace is hot enough to ignite the gas in the combustion chamber, then you can convert the furnace into a producer by closing the front portion and using only sufficient air in the producer to make gas, and then applying air for combustion, at the entrance of the combustion chamber, by means of our air syphon to induce free air at the point of combustion. By doing this you never have to light the kiln, as it is always hot enough to light itself after you turn the furnace into a producer, which will then become a perfect smoke consumer.

Salt glazing conditions are better in our Furnace Gas-Producer than in old way because you have the ability to produce an intense temperature at will.

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Makers of "NOSMO" Products

J. T. Underwood, Gen'l M'g'r.
Inventor of Underwood Producer-Gas System.

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All questions answered.

PACIFIC COAST NEWS.

The OPINIONS OF LOCAL brick and clay dealers, in the matter of business conditions at the present time, differ to a considerable extent. While building activities are going forward at a pace not experienced for many months, there is still a lull in brick construction work in many portions of the state. It is true that a number of San Francisco offices report a vast improvement over the situation of a month or two ago, but the general talk is that the brick and clay industry will require still more time before the normal business basis is secured again.

Much of the construction work which is under way just now is of the frame and plaster type, but numerous plans are under way for the larger structures in which quantities of clay products are used and it seems fair to anticipate an improvement in brick and clay lines from now on. The San Joaquin valley district is building up rapidly; most of the work which was ready before the war is being hurried to completion and large amounts of terra cotta and tile are delivered in that territory.

After a severe illness of about two months, W. H. Edwards, secretary of the local Brick Manufacturers' Association, passed away at his home in this city, much to the regret of his business associates and friends. Mr. Edwards, although 71 years of age at the time of his death, had always taken a very active interest in all matters pertaining to the trade and his loss is severely felt by the members of the brick and clay industry of the coast. He is survived by a widow and three children.

Among the San Francisco firms to report stimulation in trade conditions, is the Remilliard Brick Company. The force at the Pleasanton plant has been doubled during the last two months and the management is considering the operation of a second kiln this season. A. E. Snell, manager of the local office, stated that the company was shipping quite extensively into the San Joaquin and Sacramento valleys and laying plans for further activities in that section of the state, encouraged by the amount of building going on at the present time. The P. J. Walker Company, local contracting firm, has purchased a sizable order from the Remilliard concern for an Emeryville contract, calling for about 350,000 bricks. The Chevrolet Motor Company is using in the neighborhood of 150,000 brick on the addition to the manufacturing plant at Melrose, Cal.

Atholl McBean of Gladding, McBean & Co. was elected president of the Chamber of Commerce at a recent meeting, succeeding Frederick J. Koster, former head of the organization. The Lincoln, Cal., plant of Gladding, McBean & Co. is now operating with a large force of men. George Chambers, associated with the San Francisco offices of the firm, returned a short time ago from a vacation spent at Carmel, Cal.

The contract for the improvement of Crescent avenue, San Francisco, including the construction of vertical fiber brick pavements and other brick features, has been awarded to the local firm of Blanchard, Crocker & Howard, the lowest bidders for the job.

According to recent reports, the California Brick Company at Niles, Cal., is shipping quantities of partition tile for construction use in the San Joaquin and Sacramento valleys.

Building activities at Stockton and Fresno are increasing rapidly. At Stockton the American Pencil Works is building a plant of brick and a brick addition is being contemplated by the paper factory there. In Fresno, terra cotta and brick are being used to a considerable extent.

The kilns at the plant of the McKnight Fire Brick Company at Porterville, Cal., are now completed and according to a recent announcement of the management of the company, chrome and magnesite brick production will be commenced in the very near future. It is the ambition of the Porterville plant to create a demand for California made bricks of chromite, magnesite and silica, which were formerly obtained from Austria. J. L. McKnight, the superintendent of the company claims that the Austrian process has been obtained and production being carried on successfully by the firm.

Pressed brick is to be used for the front of the building which is being altered for the Commercial Trust & Savings Bank at Santa Barbara, Cal., and tile and terra cotta will be employed in other portions of the structure.

In the residence of T. L. McLaughlin at Beverly, Cal., a good deal of hollow tile is to be used. About $65,000 will be spent on this home.

Members of the Brick Manufacturers' Association at Los Angeles, Cal., have appealed to the Public Safety Committee of the Council to effect amendments in the building ordinance which will permit the erection of class C buildings for apartment and lodging houses to a height of five stories. Because the state law permits six-story structures of this character, the brick men in the south are of the opinion that the city ordinance should relate more closely to the state ruling, as the present conditions in Los Angeles render the cost of building excessive in comparison with the return on the investment.

A two-story brick addition to the J. A. Bauer Pottery Company of Los Angeles, Cal., is under course of construction at the factory site at Griffins Arroyo Seco tract

The price which the Vancouver port commission is to pay for the land to be used by the Dailey Clay Products Company of Vancouver, Wash., has been agreed upon between the Spokane, Portland & Seattle Railway Company and the port commission and as soon as the Clay Products Company accepts the lease which the commission offers them, the actual construction of the project will be started. It is the plan of the concern to ship pottery clay from Portland to New York by steamer. The deposit of the company at Molalla is considered to be one of the finest in the country, and is declared to be among the highest in test of over 500 other deposits. The tentative plan for transportation of the product is for the Southern Pacific railroad to build a spur from its main line to the deposit at Molalla, in order that the cars may be moved directly to the St. John's municipal terminal, and thence to the ships, thereby eliminating dock storage.

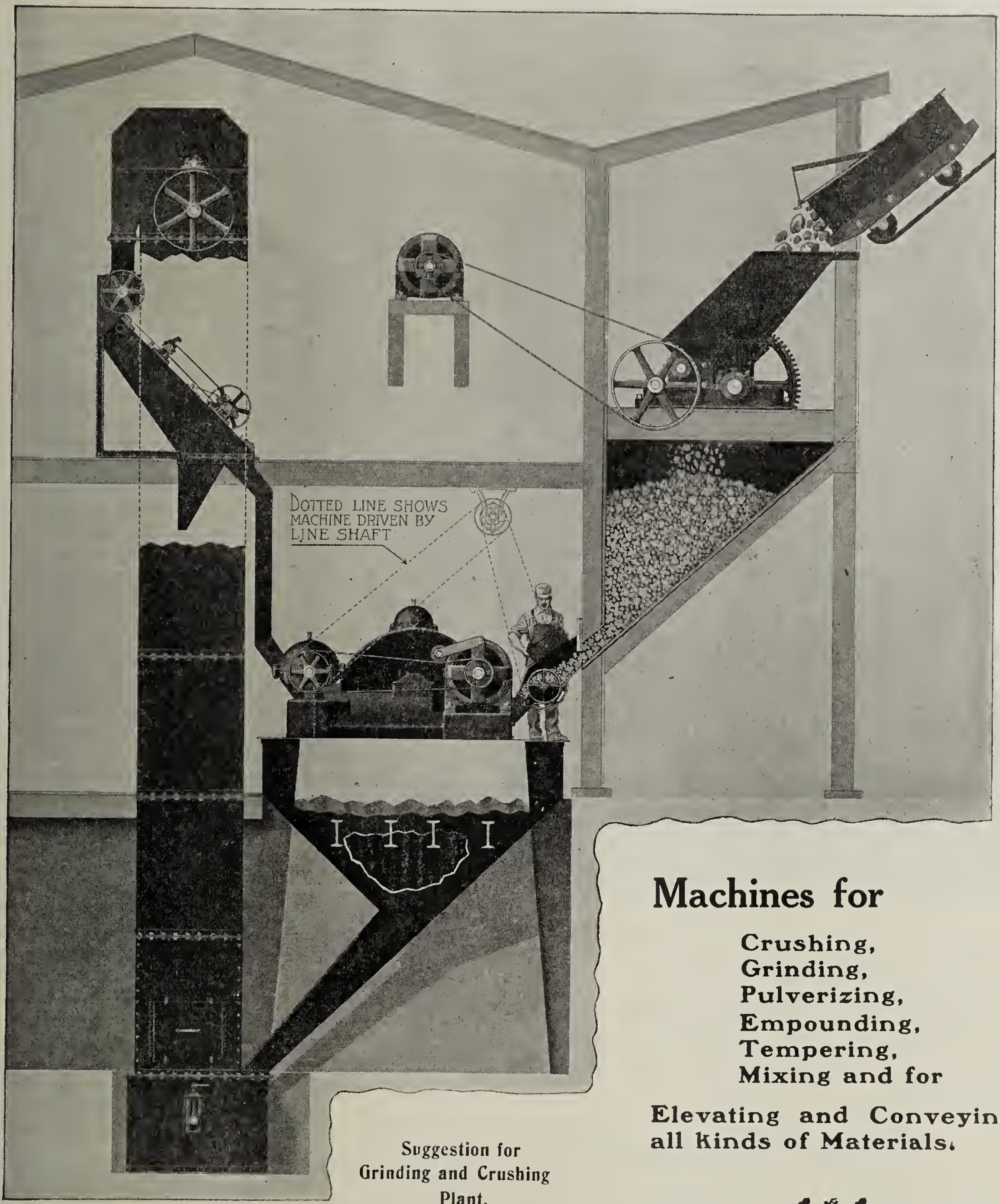
Besides these shipments of raw clay, the company will establish a manufacturing plant, and later undertake large clay designs. The site which has been secured lies east of Vancouver barracks and at a recent meeting of the Commercial Club, A. L. Haley, a representative of the Dailey organization, stated that work would be commenced as soon as negotiations were completed.

A. B. Fosseen is the new president of the Washington Brick, Lime & Sewer Pipe Company, of Spokane, Wash. Mr. Fosseen has been a resident of Yakima for about 11 years and is president and general manager of A. B. Fosseen & Co., retail dealers in building and irrigation supplies in Yakima. The control of the Washington Brick, Lime & Sewer Pipe Company has been purchased by Mr. Fosseen and his associates and from now on, he will make his headquarters in Spokane.

Plans for the new building for the First National Bank at Sanger, Cal. were prepared by E. Mathewson and construction work is to commence within a short time. The structure is to have an exterior of white terra cotta, with tiled floors, etc. The estimated cost of the building is $35,000.

June 4 SUNSET.

A lot of reclamation work can be done by established farmers right on their own land, with tile drainage.



Suggestion for
Grinding and Crushing
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* * *

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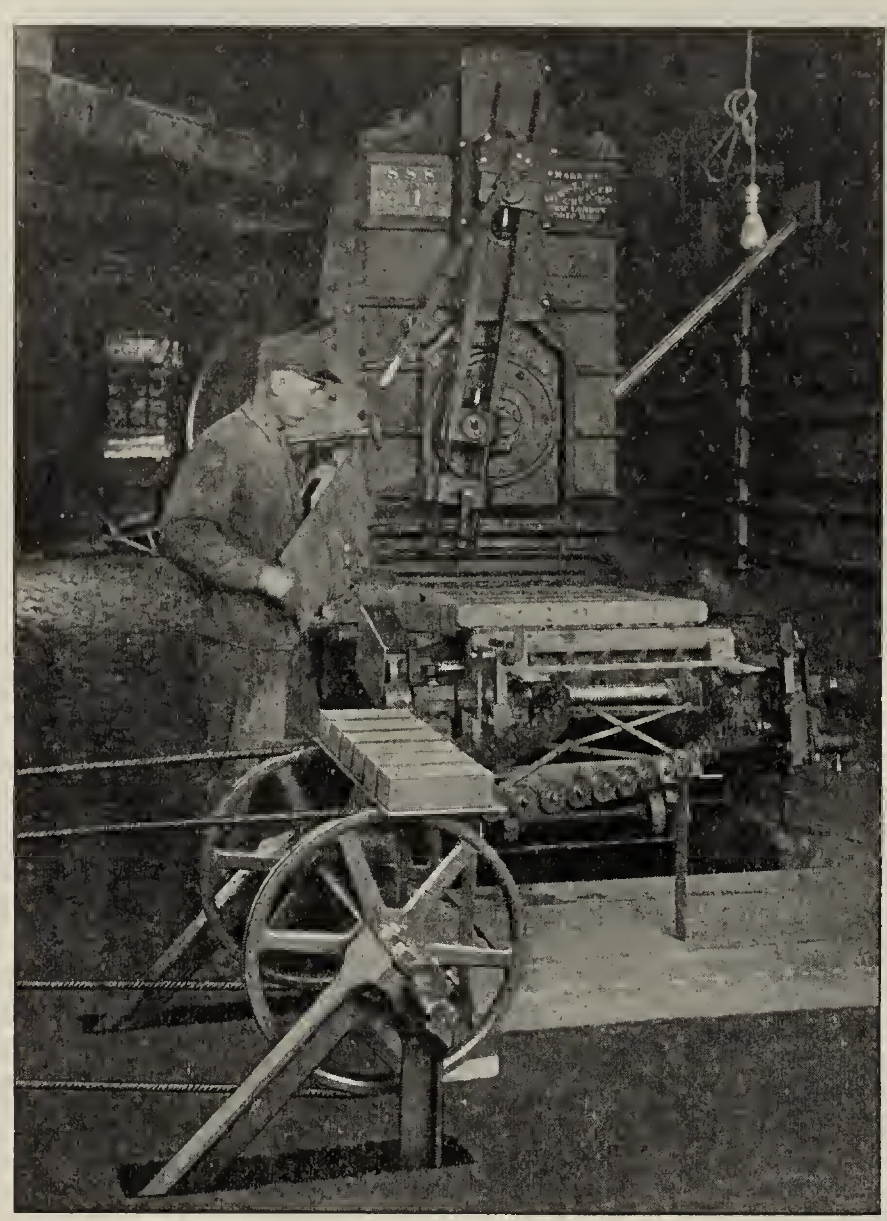

The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
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The Arnold-Creager Co.
New London, Ohio.

CINCINNATI BRICK AND BUILDING NEWS.

BY DEGREES THE building situation is showan improvement that is good to see. There are some big projects now under consideration and others that have been practically settled upon that are going to become a help toward larger operations later. In addition to these helps, there has been a larger number of smaller contracts let and more houses being planned. The report is out that the architects here are more active than they have been for a long time, and the general situation is very much improved.

There are two factors that have evidently held building projects up, and that are still making themselves felt in this way, wages and cost of materials. The latter is not seemingly of so much importance now as the former, and this, it would appear, really has been a drawback to the larger building projects that would otherwise have been put into action ere this time.

In so far as the wage question is concerned there is of course no difference from other sections. However, in so far as the matter of labor difficulties are concerned there are not so many here as in some cities and the likelihood of there being such in the next few years has been obviated by an agreement entered into recently. The Building Construction Employers' Association has entered into a contract for three years with the trades, except the plumbers, steamfitters and iron workers and pipe coverers. The danger of any serious trouble in this way has therefore been removed.

The local and nearby brick plants are seemingly on the jump. The demand for building brick is showing some betterment all the time, and the outlook is at least as promising as can be hoped for now. The dealers say that the situation is fair and that things are looking up in a way that is most encouraging. There has been a lack of demand, however for sewer pipe and allied clay lines, and the prices are somewhat off too. With the improved situation in building lines the latter commodities are sure to show a larger demand.

According to a report given out by Building Commissioner George Rendigs, the permits issued by his department for the month of May were 1,029, being considerably more than for the same month a year ago, when there were only 959 issued. The total cost of the improvements for the same month this year was $1,539,855, which is about 100 per cent. over that of a month ago. This was augmented by the large permit issued for the construction of the Dixie Terminal Building.

There are several very large projects now planned and these will doubtless lead to others, as the effect of the move will be such as to encourage the public in the practical idea of building now. One of these, that has been but recently put through, is the purchase by a number of men of the Johnson Building at the southwest corner of Fifth and Walnut streets, (Fountain Square), which adjoins the Gibson Hotel. The latter company owning the hostlery, is to build a large addition on the site. Architect Gustav W. Drach has prepared the plans and the addition will contain 497 rooms and baths, and cost about $2,000,000. The hotel will contain a modern roof garden, enlarged dining room and convention hall. This will make it the largest hotel in the middle west making 1,007 rooms. The improvement is to be undertaken not later than January 1.

Another hotel addition is to be made to the Hotel Sinton, which will include 300 rooms and baths, a dining room and convention hall on the ground floor. The addition, which will be builded to the south of the present building, will occupy the space now used by the old telephone building on Vine street, south of Fourth street. The improvements will cost about $500,000 and will be begun about July 1. The general achitectural scheme will be in accordance with the present attractive building.

A large sum, perhaps a half a million dollars, will be expended this year by the Standard Oil Co., in the construction of a storage plant at the intersection of Spring Grove Ave., and Alabama street, in Camp Washington. The plant will cover two city blocks and will contain a number of buildings, including warehouse, garage, copper shop, bulkhouse storage, boiler house, etc. The material to be used will be brick and concrete.

C. C., E. A. and M. H. Weber, architects, have purchased a plot of ground in the Kentucky Highlands, and will erect thereon six buildings, of the bungalow and semi-bungalow type, at an average cost of $5,000. They will be of brick and stucco. It is estimated that the above section is short three hundred houses.

The above firm is receiving bids on a house to be builded for Robson Moore, to be erected at Mt. Pleasant and Montrose Ave., 72 by 50 feet.

The Pfaff Motor Car Co., will build a service station and used car department on Sixth street, near Broadway. It will cost about $25,000. The building will be 57.4 by 88 feet, the plans for which have been decided upon.

A battery of 34 independent garages will be builded on the east side of St. James Place, south of Curtis street by S. M. Livingston and Sam Lehman. The idea is a little new here, and this will be the largest group of garages in this city.

The following plans have been made by C. C. and E. A. Weber, architects; the building of a ten room brick residence for J. A. Washington, W. Va., and an eight room dwelling for Mrs. Anna Sutton, Mt. Sterling, Ky. The former will cost about $15,000 and the latter $12 000. The firm has plans for making alterations for the New Fair Co., on Pike street, Covington, Ky., to include the building of two additional stories, 25 by 18 feet, and a combination office and apartment building at Owentown, Ky., for Judge J. W. Cammack. It will be 22 by 147 feet, three stories high. Also a ten room public school at Smith's Grove, Warren County, Ky., 110 by 68 feet. It will contain a gymnasium and auditorium.

The Ohio Building and Construction Co., has been awarded the contract for the building of a new home for the Lyric Piano Co., 632 Race street. The building will be four stories and basement, and will be builded of brick and tile.

The Cincinnati Clay Co., find that the demand for sewer pipe and kindred lines of clay products, has been somewhat slow of late. Prices too, are off some of late.

The Brick Sales Co., feel that the future has a very fair promise and are feeling optimistic over the prospects for business.

The Moores-Coney Co., say that the demand for brick of late has not been very greatly improved.

The Cincinnati Clay Products and Manufacturing Co., feel that the future offers a very fine outlook. They are very active now. This company and that of the Builders' Brick Co., both of which are located in the Johnson Building, recently sold, will have to seek new quarters before many months.

Reports with the Purcell Brick Co., are that conditions are some better of late, and that the outlook is at least favorable for the business in face brick and other clay products.

Conditions with the E. F. Grand Brick Co., are moderately good for face brick, but not as active as they were several weeks ago. The difficulty in obtaining stock is one of the more annoying features now. CINCY.

THE SERVICE BELT

A brain and brawn combination that makes things hum —that's me, "On-the-Job" GANDY, the original stitched cotton duck belt.

I'm made to give, inch for inch, the kind of service that only first-class materials, constructive skill and the GANDY secret process of seasoning can put into a belt—

And the engineering department back of me guarantees perfect adjustability to every requirement of belt-users — and that I give to each "top notch" service.

Are you getting that from your present equipment?

If not, come to us with your power and conveyor problems. We can end them with GANDY belting—and we're ready to do it NOW!

Look for the Green Edge and *Gandy* Trademark.

Yours for service

"On-the-Job" *Gandy*

Service Manager.

THE GANDY BELTING COMPANY
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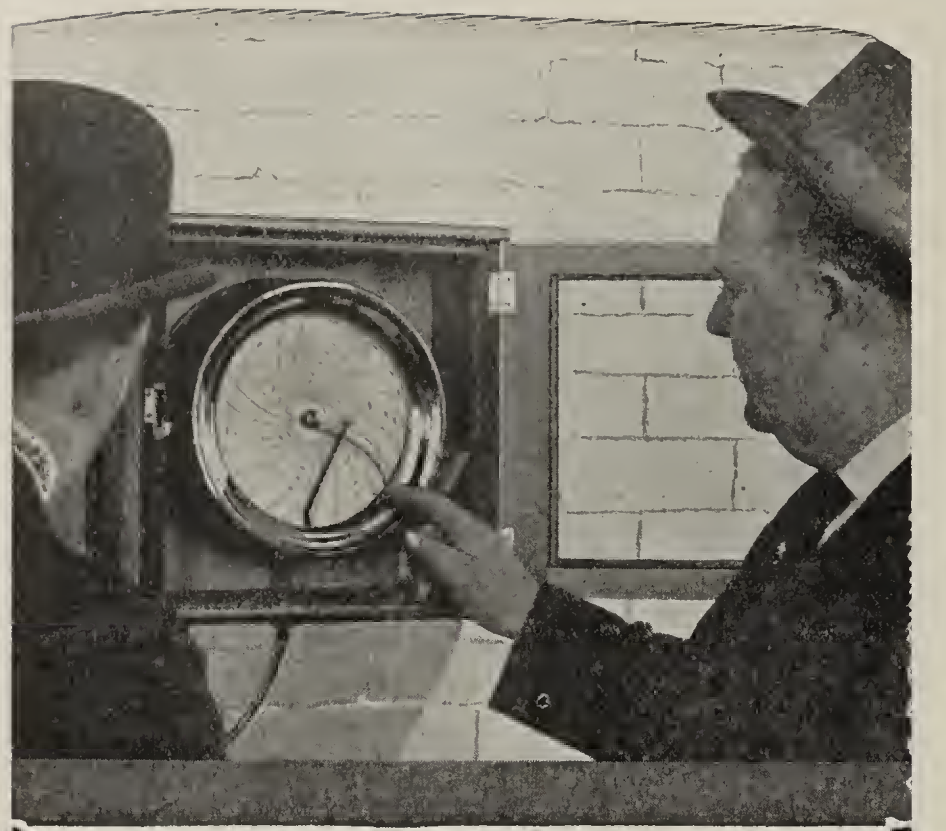
GANDY BELT
"Stitched" Cotton Duck



"With this Instrument I Cut a 30% Dryer Loss to Almost Nothing"

A big happy-go-lucky Westerner came breezing into my office two days ago and opened up with "Say, maybe the first 24 hours I used your Recording Thermometer on my dryer didn't open my eyes! I have always used Pyrometers because I felt that temperatures were vital to make brick plants pay today. I sort of forgot about the drying end of it, and yet it's logical to suppose that if I run brick through my dryers at 150° F. one day and 350° F. the next, that's going to effect my burns.

"Well, that Thermometer showed me that my temperatures were swinging from maximum to minimum and nobody knew the difference. Just as soon as I got it, however, my men could watch the temperature, shut the blower off or throw it on, and I had a twenty-four hour record to show me what was doing. Believe me, after this my drying was done pretty near right, and the instrument has sure been worth its cost since the first day that bulb was stuck in the heat."

How about your dryer? It's an inexpensive equipment that every brick plant ought to have and a whole lot of them have awakened to the fact that a Brown Recording Thermometer is the most reliable and dependable that they can put their hands on. Let us send you full information and our good Westerner will add a word of commendation if you want to write him. We'll furnish the address.

Drop a line to us today.

The Brown Instrument Co., Philadelphia.

World's Largest Pyrometer Makers

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Recording Thermometers

For Sale

Drain Tile Plant

Sale Price Reasonable

Business Good
Plenty Raw Material
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Five Kilns
(Four practically new.)
Five Gas Wells
Dry with Gas
Burn partly with Gas
29 Acre in Property
700 Acres Leased Land
Make Fine Ware
Splendid Transportation Facilities

Reason For Selling

Owner interested in another plant and other business that requires all his time.

Will sell only to right party.

INDIANA BOX 6,
Care Clay-Worker, Indianapolis, Ind.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LXXII. INDIANAPOLIS, JULY, 1919. No. 1.

CERAMIC ART TREASURES--

The Metropolitan Museum of Art; Its Wonderful Specimens of Ancient and Modern Craftsmanship Including Many Rare Clay Products, Connecting Links Between the Past and the Present of Art and Industry

Ancient Pottery of Simple Yet Beautiful Design, Photograph of Specimen in Metropolitan Museum of Art, New York City.

AN EXCELLENT INDICATION of the march of events in these hectic days of grim struggle for the mastery of an ideal in human life is the spirit of usefulness demonstrated by The Metropolitan Museum of Art, an institution devoted to the maintenance of the arts of peace and now doubly anxious that these arts be improved and propagated for the time after the new day has dawned when our readjusted existence and our millions of returned fighters will require that balance wheel of grace and beauty which a fine environment affords.

By those who have not considered the matter with adequate care, it may be thought that museums of art are among those so-called non-essential factors of a quiet life, suddenly made unnecessary when men's minds temporarily turn to military methods of solving their problems. The museums, however, have shown that the German point of view of peace as only the interval between wars requires complete inversion to apply to American life and thought. War is the infrequent ugly interloper, a destroyer whose reappearance for many centuries the concluding peace of the present conflict will make impossible.

Believing that the era of progress, which this war will certainly usher into the world, will see an exceptional development in the various industrial arts branches, we are glad to record the step taken by the Metropolitan Museum in the salutary direction of affording an immediate co-operation and assistance to manufacturers of decorative art objects, from furniture and textiles to garments and jewelry.

The Museum has established a department devoted specifically to the requirements of producers and dealers in industrial art objcts, a department which will make every effort to render accessible the invaluable resources of the collections for the betterment of American design and craftsmanship. This office will be in charge of Richard F. Bach, of Columbia University, formerly one of the editors of Good Furniture Magazine. Mr. Bach's experience in the field and especially his knowledge of the nature of the design problem as related to the requirements of manufacture and merchandising will make it possible for manufacturers to obtain direct assistance, so that they may henceforth rest assured that there are no unmined treasures in the splendid Morgan and other collections to which they have not immediate access in terms of their own particular problems and requirements.

It is planned to make this departure on the part of the Museum directly useful to all designers and producers, dealers and manual craftsmen engaged in any way in connection with the making or selling of pottery, art tile, furniture, fabrics, floor coverings, clothing, metal work, woodwork, jewelry, laces and any other industrial art branches.

Those of us who have followed the development of The Metropolitan Museum of Art since its inception, or even during the last twenty years of its phenomenal growth will see in this announcement one of the most important forward strides that could be taken in American industrial arts production. We all recall the emergence of the public library from its fossil age of fifty years ago when it was a "collection of books." Today the library is one of the busiest centers of any village or city, a nucleus of information of inestimable value.

So it is with the museums of the country: They too have gradually emancipated themselves from the earlier state of slavery to the unmitigated instinct of the collector. Nor is this an aspersion upon the public spirited men who first saw their way clear to establish such collections. The collector's instinct is and must be at the base of all such undertakings, museums and libraries alike, for without it the fundamental impulse that brings them into being would be lacking.

But the institution once established, it no longer suffices for it to keep on its smooth course of gathering and exhibiting, believing that people are bound to come. The inertia of the human mind is too serious an obstacle to this course. Like the library, the museum has found that the collecting instinct unimproved in accordance with the needs of the time comes to resemble a hoarding instinct, and that to be a collection of objects ceases to be the real aim. Thus the service ideal presently takes its place beside that of the collector's original intention and the museum objects are rendered useful by a thousand and one channels of real development in the factories and studios and salesrooms.

This service ideal is given a real value in view of the gigantic struggles in France, from which so much of our inspiration in this very field has regularly come, and therefore we are especially pleased to note that The Metropolitan Museum of Art has once more taken the leadership for the greater good of the community.

The Museum has recently appointed an Associate in Industrial Arts whose specific business it is to help the manufacturer, dealer, designer, artisan, or manual craftsman in taking advantage of the privileges offered by the Museum, and to render accessible to him the valuable resources of its rich collections in terms of his own problems and requirements and for the betterment of American design and craftsmanship. By this personal assistance the Museum hopes to establish that close contact between the modern American industrial arts producer and the finest traditions of other times, as illustrated in the Museum, which is necessary for the steady improvement of American taste as an asset in American civilization.

PERSIAN ENAMELED TILE WORK.

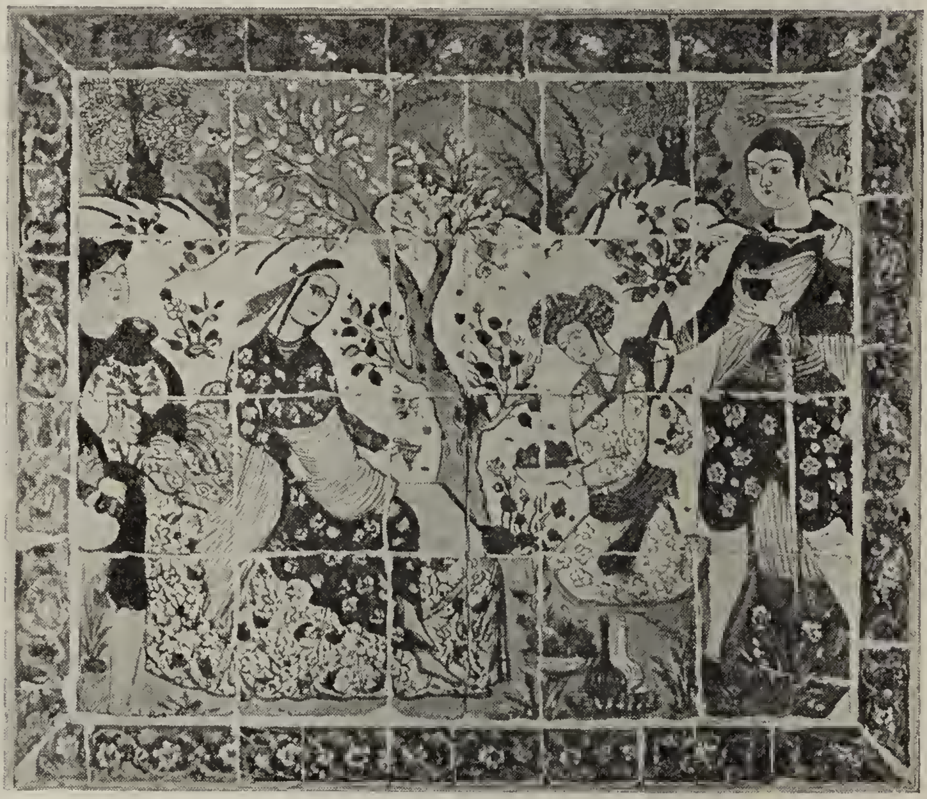
One of the best examples of this art, in which the Persians have excelled since the time of Darius, is to be found in the group of three panels, consisting of 112 enameled tiles, which were bought by the Museum out of the income of the Rogers Fund in 1903.

These tiles formed part of a dado in the Pavilion of Chechel Sutoon, or the Pavilion of the Forty Columns, at Ispahan, built during the reign of Shah Abbas I, who ruled from 1587 to 1628. Under him Persia regained her lost provinces from Turkey, with the aid of those picturesque soldiers of fortune, Sir Anthony and Sir Robert Shirley, and Abbas' dominions at his death extended from the Tigris to the Indus. Besides his martial achievements, this Shah was particularly successful in encouraging commerce and the arts, and his court, where he received many Christians, was noted for its magnificence.

The three panels give a glimpse into the distinguished Persian life of the epoch. It may be that actual occurrences are commemorated in them. History tells of the puissance of certain of the ladies of Ispahan, how even the foreign ambassadors were compelled to pay them court. Perhaps in the panel of the center and in that at the left hand some such scene is depicted, in which the Persian leaders receive salutations and offerings from cavaliers who wear European dress.

The style of the work shows the influence of the Chinese—the designers may have studied in China—but the sentiment is surely Persian. It expresses the pleasures of companionship amid pleasant surroundings and the love of cooling drink and refreshment. The color effect of these Persian fetes champetres is in itself cooling, blue, green, turquoise, and pale yellow being the predominating shades.

In the central panel, around which a border has been added, a seated lady holds a reception in a garden. Two men in European costume are with her. One respectfully holds his hat in his hand and the other brings an offering. A servant kneeling before the lady offers her pomegranates and on the flowers and grass at her feet are more fruits and two carafes.


Panel of Persian Tile. A Relic of the Fifteenth Century.

THE GOVERNMENT AND BUSINESS.

Those who speak for the government express without hesitation the belief that the government should co-operate with industry and business in the great re-adjustment and upbuilding of industry, but so far there has been but little in the way of specific ideas for such co-operation forthcoming. On the other hand there has been a published statement by the attorney general of the United States that he will prosecute under the anti-trust laws any combinations or price agreements which may be interpreted as infractions of these laws. That doesn't sound encouraging coming right on the heels of the talk of the government helping business. But it does sound like a call to action that we may have some of our anti-trust laws repealed and the way cleared somewhat for the stabilizing of prices without being always in danger of prosecution by government authorities. It is a time for the business men of the country to be letting our representatives at Washington know something of the needs of business.

THE 1918 EXPORTS.

WHILE the clayworking industry in the main is a domestic industry depending almost entirely upon the home trade, we have been developing some export trade, especially in fire brick and in our pottery products, with a little building brick going along, too, for good measure. According to the figures of the Bureau of Foreign and Domestic Commerce now available for the calendar year 1918, we exported a total of $8,458,506 of clay products. In addition to this we sent to our own non-contiguous territory—Alaska, Hawaii, Philippines and Porto Rico—a bit more than half a million, mainly pottery products, making the total of outgoing trade $8,982,191, nearly an even nine million dollars. This is made up of the following items:

Exports of Clay and Clay Products, 1918.

Fire Clay	$ 333,880
Other Clay	192,053
Building Brick	117,263
Fire Brick	5,001,057
Earthen, Stone and Chinaware	1,102,025
Sanitary Ware	377,527
Tiles—except Drain	582,051
All other	752,651
Non-Contiguous Territory	523,685
Total	$8,982,191

It will be observed that more than half this total is made up of fire brick, which speaks well for our refractories and the enterprise of the manufacturers. The next big item is earthen, stone and chinaware, which has room for considerable more expansion, as has also the item of sanitary ware.

Practically the only question raised about brick paved highways is that of first cost, for the paved way is accepted as the best way when it is once properly done. And if cost is counted through the years of service then there shouldn't be much question left there.

BUILDING ARGUMENTS.

ON ALL SIDES building material men are promoting interest and activity in building operations, and many and varied arguments are being put forth as to why people should build now. Some are far-fetched, some are poor and will not hold water, and some are good enough to deserve much repetition. Home building has the best sentiment back of it, and thus very naturally furnishes a rallying point for building arguments, and one of the arguments which should be given prominence here is that of building well and building for permanence. Building costs more now than ever before, costs enough that it pays to make it cost a bit more and make it good. It is no time for seeking for flimsy cheapening devices and methods. Better homes should be the companion slogan of more homes.

It is not a time to urge speculative building, or unnecessary building of any kind, but it is time to make a plea against procrastination where necessary things are involved. And this includes buying as well as building. Touching this point one of the best arguments of the season is found in the Saturday Evening Post, under the title of "Go Ahead," from which we quote the following:

"If there is anything you can make good use of, from a pair of shoes to a farm, go ahead and buy it right now and get the use of it. If you have immediate need of a building, go ahead and build it. Mr. Micawber, you remember, was always waiting for something to turn up. Nothing ever does turn up for those who sit around waiting for it. Things turn up for people who go ahead.

"Go ahead now; buy and build whatever you have use for. Do not be extravagant of money or credit; but do not be extravagant of time, either; and waiting is spending time. Thrift means going ahead with production and useful expenditures as well as avoiding waste."

Metropolitan Museum of Art, Central Park, New York City.

BASIC REFRACTORIES FOR THE OPEN HEARTH.

By J. Spotts McDowell and Raymond M. Howe, Pittsburg, Pa., New York Meeting, Februrary, 1919.

PREPARATION AND USE.—Magnesite is an important refractory in open-hearth, heating, and electric furnaces for steel-making and in many of those employed in the metallurgy of copper and lead. It is sold in the form of brick, finely ground "furnace magnesite" for brick-laying, and dead-burned grains for making and repairing furnace bottoms. The latter are a mixture of granules varying in size from pieces of about ⅝ in. (1.6 cm.) diameter to very fine but sandy particles. Dead-burned magnesite results from calcining the crude or lightly burned mineral at a temperature that will not merely drive off practically all the CO^2, but will also cause sintering of the particles. During this process the pieces shrink considerably and become hard, dense and inert to atmospheric moisture and CO^2; under-burned material, on the other hand, will hydrate on exposure to the air. A small percentage of ferric oxide seems to be necessary for the production of a satisfactory sinter; from 4.5 to 8 per cent. in the dead-burned grains is considered the most desirable amount.

Dolomite has been little used for brick-making in the United States, but it is prepared for use in granular condition calcined or "double-burned and is the principal ingredient of several materials offered for sale under various trade names for refractory purposes. Dolomitic refractories are almost wholly confined to the open hearth and electric furnaces where they are used for fettling and as substitute for magnesite.

Much more magnesite and dolomite are used for basic open-hearth steel-making than for all other refractory purposes. The hearth of the furnace is usually built of magnesite brick and dead-burned grain magnesite so laid that the brick base is protected by a working bottom of the granular material. The latter is sintered into place in layers ½ to 1 in. (1.25 to 2.5 cm.) thick to a total depth of 12 to 18 in. (30 to 45 cm.) at the center of the furnace. After each heat, burned dolomite is thrown against the banks as high as it will stick, and all the holes in the bottom are filled. At most plants such holes, at the end of each week, are also carefully filled with dead-burned grain magnesite. For temporary patching dolomite is generally used as it sets more quickly than magnesite and its first cost is less.

Prior to 1914, the world's supply of refractory magnesite came almost wholly from the crystalline deposits of Austria-Hungary. Its superiority lies in its high refractoriness and long range of vitrification, which enable it to frit together at high temperatures without fusion or excessive softening. These properties are imparted by a fairly high contact of iron oxide, together with an extremely low percentage of harmful impurities. The dead-burned Austrian magnesite sold in the United States had the following range of analysis: MgO, 83.7 to 87.3 per cent.; CaO, 1.9 to 3.9 per cent.; SiO^2. 1.1 to 4.1 per cent.; Fe^2O^3 and Al^2O^3, 4.7 to 8.6 per cent. With the cessation of shipping from Austria, magnesite was imported from Greece and Canada, domestic deposits were developed and as a temporary expedient dolomite was substituted for magnesite where practicable. The deposits of this country are now developed sufficiently so that an adequate supply is available and ample reserves are blocked out to last many years. Table 1 shows the great expansion of domestic production since 1914. All figures are reduced to a calcined basis, assuming 2 T of crude magnesite equal to 1 T. of calcined.

Table 1.—Total Magnesite Consumption of United States on a Calcined Basis.

	1913	1914	1915	1916	1917
Imported, net tons..	173,719	128,494	51,458	46,941	19,093
Domestic, net tons..	4,816	5,646	15,250	77,487	158,419
Total tons	178,535	134,140	66,708	124,428	177,512

At the beginning of the war, the refractory manufacturers were crippled by a lack of calcining facilities, since the Austrian material had been imported in the calcined condition. The low iron content of the available magnesite caused additional difficulties. In order to confer the proper sintering and bonding properties, it became necessary to add iron oxide and to incorporate it thoroughly by burning at an extremely high temperature. Magnesite thus treated, if sufficiently low in harmful impurities, is a high grade refractory and has given conspicuously satisfactory service.

Grecian Deposits.—These deposits are of the amorphous type and had been operated on a large scale for many years, but their output was rapidly increased after the war began. Considerable magnesite was imported from Greece in 1915 and 1916, but shipments were suspended late in the latter year. Much of it is of exceptional purity, as shown by the following analyses of crude rock; though some of the imported material was very high in CaO and SiO_2 due doubtless to improper selection at the mines. The percentage of impurities after calcination will be practically double these figures on account of the loss of CO_2.

Analyses of Crude Magnesite from Greece.

SiO_2	0.67	0.46	1.19	1.63	2.28
Al_2O_3 and Fe_2O_3	0.30	0.50	0.43	1.36	0.19
CaO	0.92	1.24	0.80	1.44	1.56
MgO	46.06	46.22	45.83	45.75	44.78
Ignition loss	52.16	51.51	50.42	49.88	49.76
	100.11	99.93	98.67	100.06	98.57

Magnesite of Greenville District, Quebec.—This magnesite is white to grayish, finely crystalline, and high in lime due to dolomitic inclusions. Wilson, in 1917, estimated that there were in sight a little under 700,000 T. in deposits of the district containing less than 12 per cent. lime (equivalent to over 20 per cent. lime when burned). It has been stated that when calcined and mixed with furnace slag of dead-burned with iron ore, the Canadian magnesite has given satisfactory service in furnace bottoms.[2] However, the leading refractory manufacturers prefer the purer mineral of California and Washington, and endeavor to maintain the CaO content below 4 per cent. in the dead-burned material. During the period of scarcity of magnesite, the Canadian product was utilized by several companies in the manufacture of magnesia brick as a minor constituent of the mix, but this practice has probably been entirely abandoned. It is however, being employed for the production of dead-burned grain magnesite, by sintering with iron oxide in rotary kilns.

California Magnesite.—This magnesite, which is one of the amorphous type, is found at many places. It occurs in the form of veins, lenses, and stockwork in serpentine; the deposits are usually small. The largest and most important are those near Porterville, Tulare Co. and St. Helena, Napa Co. Prior to 1914, about 10,000 T. were being produced annually, hence the mines had not become sufficiently developed or equipped to produce large tonnages before the summer of 1916. Transportation was a serious problem in the rainy seasons, as nearly all of the deposits are a number of miles from the railroad and hauling to the cars is done by means of trucks. Variations in quality at first caused the users considerable difficulty. It was often hard to keep the silica and lime contents within the proper limits, due to the impurity of some deposits and the lack of uniformity in others, as well as to the common inexperience of the operators. Most of these difficulties were gradually lessened and in 1917 the production had risen to 211,663 tons of crude magnesite.[1] In the meantime, a considerable number of calcining plants had been erected near the mines, in order to give the rock a light burning before shipment. Since a loss in weight of about 50 per cent. occurs in this burning, a material saving in freight resulted. Recently the California production has fallen off, due to the competition of the larger and less expensively operated deposits of Washington. The first analysis, which is uncommonly high in iron for magnesite of this type, is representative of a unique deposit near St. Helena, Napa Co.

Typical Analyses of Californian Crude Magnesite.

SiO_2	3.25	5.18	1.10	3.86	1.55
Fe_2O_3 and Al_2O_3	2.20	1.10	0.40	0.80	0.45
CaO	1.25	3.34	Trace	2.04	1.38
MgO	43.87	41.92	46.54	43.47	45.68
CO_2	49.53	48.78	51.20	49.48	50.97
	100.10	100.32	99.24	99.65	100.03

Magnesite Deposits of Washington.—These deposits have become a most important factor in the market since their discovery in 1916; 715 tons of crude rock were mined and shipped in the latter part of that year, and 105,175 tons were produced in 1917. The mineral is finely to coarsely crystalline and shows many variations in color from from white to gray, pink, red, and black. Mining is done by both open-quarry and underground methods. It is reported that diamond drilling at the Finch Quarry of the Northwest Magnesite Co. has proved the existence of more than 1,000,000 T., and that on more than one of the properties an estimate of 1,000,000 T. within 200 ft. of the surface is reasonable.* Prior to the erection of calcining plants at the properties many thousand tons of crude rock had been shipped in which the silica content was uniformly below 3.5 per cent. and lime less than 1.5 per cent. The analyses given below are typical:

Typical Analyses of Washington Magnesite.

SiO_2	1.9	3.3	4.3	0.6
Fe_2O_3 and Al_2O_3	1.0	1.0	0.8	1.2
CaO	1.7	1.4	1.1	0.5
MgO	45.2	44.8	45.0	46.4
Co_2	49.7	49.3	49.5	51.0
	99.5	99.8	100.7	99.7

Calcination is now being done near the quarries, and dead-burned magnesite for refractory use to which iron oxide is added during manufacture is being produced in rotary kilns. The material as marketed by one producer has the following average analysis: MgO, 82.5 per cent.; CaO, 3.4 per cent.; SiO_2, 6.5 per cent.; Fe_2O_3 and Al_2O_3, 7.25 per cent.; loss on ignition 0.5 per cent.

Dolomitic Refractories.—For many years prior to the war few basic bottoms in America had been built of dolomite, which was little used except for temporary patching and the fettling between heats. Since 1914, however, calcined dolomite and especially prepared dolomite materials have been common substitutes for magnesite, being placed in the furnace in the same manner as the grain magnesite. Within recent months the tendency on the part of steel makers has been to displace burned dolomite by specially prepared dolomites for the temporary patching and to return to the use of high-grade magnesite for all original installations and major repairs.

In the calcination of dolomite either vertical or rotary kilns may be used. In the latter case the rock is usually crushed to pass approximately a ⅝ in. (16-mm.) screen, the fine powder screened out, and the granules burned. It is usually held that for best results the heat applied must be sufficiently intense not merely to drive off the CO_2,but to cause the pieces to shrink and become hard and dense. The rock is freqently "double-burned" by being heated in one kiln merely high enough to drive off most of the CO_2, and further shrunk in a second at a higher temperature. The usual range of composition of the crude rock is CaO, 28 to 35 per cent.; MgO, 14 to 20 per cent.; SiO_2, 1 to 7 per cent.; Al_2O_3, 0 to 4 per cent.; Fe_2O_3, 0.5 to 5 per cent.; CO_2, 43 to 46 per cent. As high a magnesia content as possible is considered desirable.

Burned dolomite as ordinarily prepared air-slakes readily on account of the high percentage of lime. For that reason it cannot be kept in stock for any length of time without deterioration and should be made just before use. A dolomite bottom is likely to show considerable slaking after a shut-down of even comparatively brief duration. Since dolomite does not set as solidly as magnesite, patches of a dolomite bottom are more apt to become detached and float in the bath.

Special Dolomitic Refractories.—Within the last few years, numerous investigations have been undertaken in the attempt to overcome the marked slaking properties and other defects of calcined dolomite. As a result several articles consisting of specially prepared dolomite have been placed on the market under various trade names, some of which are superior to ordinary calcined dolomite, being more resistant to atmospheric slaking and giving better service in the furnace. In most of these preparations the granules are coated or impregnated with pulverized basic slag iron ore, or similar material by burning at a high temperature in a rotary kiln. The attempt has likewise been made to coat the crushed rock with

[3] C. G. Yale and R. W. Stone: Magnesite in 1917. Mineral Resources of the United States, 1917 (1918) Pt. 2, 65.

Yale and Stone: Op. cit.

a pulverized slag suspension in water, so that upon burning a protective coating will be formed on the surface.[5] In other cases the slaking properties are diminished by using an impure dolomite, preferably one high in iron. The analysis considered most desirable may be obtained by mixing raw rock of different compositions.

One patented material is prepared by grinding together dolomite and iron ore to form an intimate mixture and calcining at a temperature reported to exceed 2850° F. (1565° C.). The finished product for furnace bottoms is said to show the following range of analysis: CaO, 42 to 55 per cent.; MgO, 38 to 25 per cent.; SiO_2, 6 to 13 per cent.; Fe_2O_3 and Al_2O_3, 8 to 14 per cent.

Another compound consists of an intimate mixture of granular dolomite and about 10 per cent. basic open-hearth slag. The manufacturers prefer hard, compact and dense varieties of dolomite, as high as possible in magnesia. It is said that the granules, after calcination in a rotary kiln at about 2800° F. (1540° C.), are mixed, upon coming from the kiln and while still hot, with the granulated slag and the mixture is sent through a rotary cooler. It is claimed by the manufacturers that material thus prepared may be transported without slaking when the magnesia content is high and the dolomite is extremely hard burned. The average analyses of several shipments is given herewith: CaO, 48 to 55 per cent.; MgO, 29 to 32 per cent.; SiO_2, 4 to 11 per cent.; Al_2O_3, 3 to 6.5 per cent.; Fe_2O_3, 4 to 7 per cent.

(To Be Continued)

MOTOR TRUCK IN CLAY PRODUCTS BUSINESS

By Chas. Harrison, Dominion Sewer Pipe and Clay Products Co., Ltd., and Horace Hepner, Commercial Motors, Ltd.*

Before we pass on to the subject which we are gathered here this afternoon to discuss, let me first pay homage to man's faithful servant—the horse: his days of usefulness antedate all records.

We hear of him in prehistoric days of fable, and we realize that he is even yet indispensable in some lines of business. His sphere of usefulness in your particular industry, lies in places where there is not a permanent haulage equipment. (mechanical) or for instance on excavation work, on unbroken ground or in the factory, where it is only necessary to supply material in small quantities at irregular intervals. In short, where it is not economy to employ a more expensive mechanical device, or a more highly skilled operator.

Modern conditions, however, have compelled us to look for quicker methods of dispatch, and as there are certain limits to the physical endurance of the horse, progressive engineers turned towards something mechanical for the solution of this most important problem, and as a result we have the highly efficient and time saving motor truck.

Foremost in the manufacture of mechanical haulage equipment was the concern which I have represented in the Dominion for the last seven years, Commercial Cars Limited, Luton, England, and with branches now in Toronto, Montreal, Winnipeg and Vancouver.

They began over fifteen years ago to specialize in transportation problems, and have produced outfits which have met all reasonable haulage demand. On all Continents our products have found favor.

In fully 90% of the transportation problems of your industry we feel that a motor truck is suitable, and where it is not so we have to call upon the Caterpillar tractor, or the four wheel drive motor truck, which we shall hear and see more of in the near future.

The success or otherwise of the business motor depends upon the care taken in choosing a machine, and upon the state of efficiency in which it is maintained. Probably no piece of machinery deteriorates so rapidly as a motor vehicle if neglected. The strenuous work it is called upon to do —the tremendous vibration to which it is subjected—and the stresses laid upon its mechanism—which no stationary machinery is called upon to withstand—all are factors combined with lack of care to produce early destruction.

A few firms who consider the motor truck as being suitable for your industry, we take the liberty of mentioning, namely, The Ontario Paving Brick Co., Ltd., who operated a six ton truck for many years prior to the war, for the hauling of shale from pit to factory over wretched roads. In the handling of your finished products we mention the Dominion Sewer Pipe & Clay Industries, Limited, and the Ontario Sewer Pipe & Clay Products, Limited, as being competent to give the testimony regarding the efficiency of mechanical haulage after six years of continuous operation. These firms have had to contend with the very worst of road conditions. They recognized how vital the motor truck was to their industry, and so were willing to spend money, time, and labor without stint to improve local highways when necessary. We highly recommend their policy to firms desiring good results.

In purchasing a motor truck for your industries, it is advisable to seek the advice of a competent and impartial expert with regard to the merits of the productions of various makers. We believe a prospective purchaser without previous experience of mechanical equipment will be wise in taking his custom to some firm well known for the excellence of their product. Do not place too much confidence in one or more demonstrations as they are not conclusive. Inferior vehicles, if handled with care, do not show their weak points after a month's test, in fact they often do more when working under such conditions than the machines built by a reliable firms who build for years of hard service.

At this stage let us mention the need of care being taken when investigating the merits of motor trucks, to pay particplar attention to the spring suspension, especially if you are desirous of employing the machine in hauling of pipe.

Examine also most carefully the gear ratios of trucks, for experience has taught us the need of such if good results are to be obtained. The performance of motor trucks in France proves our contention.

The careful selection of your operator for your machine is a most important consideration—in his hands you have placed a valuable piece of machinery—and we know that if he receives from the management, encouragement, sufficient renumeration, and is also allowed time to keep his truck in good running order, you cannot fail to reap good results.

No make of motor truck will prove successful if you practice the evil of overloading. We believe that if we make and offer you a three ton truck, you have no right to expect the machine to take a 50 per cent. overload. Should you do this we cannot guarantee the truck to be suitable, because the lead factor for safety has been taken up by the extra weight, leaving nothing to withstand the unevenness of the road surfaces. If thirty per cent. of your loads average four tons or over, you should not consider the purchase of a machine of lower carrying capacity—our experience proves to us that the extra cost of a four ton machine as compared to a three ton will be infinitely smaller than the upkeep cost of an overtaxed three ton.

The sin of over-speeding does not need to be enlarged upon, as results are always evident. It is, gentlemen, just as necessary to have frequent inspections made of your motor trucks, by a competent mechanic, as you have deemed it wise to rely upon a veterinary surgeon for the satisfactory condition of your horses. This should be done every month if possible, and not less than, every three months.

Cost of operation varies in your industry, as owing to road conditions being more severe, we have to figure upon tire upkeep, cost, and a depreciation of machine being heavier than it would be with a truck of similar capacity doing same mileage per year if employed on the city streets. and it is not always possible for the manufacturer of a motor truck and the owner to agree upon a satisfactory basis upon which to arrive at this cost. One well known make of truck, manufacturers fix depreciation charges—they figure upon one hundred thousand miles of travel—we can cite the case of one of our truck owners, Sir Thomas Lipton, whose four ton machine up to the end of 1918 has run 238,000. This machine runs from Birmingham to London, a distance of ninety odd miles, making three trips per week, over roads which are by no means like billiard tables. Very wisely this truck is laid up annually for a thorough over-haul.

Although our company knows of many cases where their machines have done the hundred thousand miles and more, yet it has always been their policy to recommend writing off upon a 15 per cent. basis each year upon the chassis value, less cost of tires, as they are taken care of separately on cost sheets.

An important factor contributing to success is the employment of loading and unloading devices, which tend to cut out much of the manual labor and standing time. There are on the market today mechanical devices to install upon trucks which take care of the quick handling of shale from pit to factory.

For this we recommend either a mechanically operated end dump when shale goes direct into the factory, or a side dump in case the shale is to be weathered. For this particular branch of your industry care must be taken in choosing a motor truck that will comply with local road laws, the state of roads and the size of the daily factory output.

There are demountable bodies available which will pick up a load of bricks satisfactorily and dump en bloc without causing any defacement. This outfit is working with good success on the other side. All such devices, of course, add materially to initial cost, but the satisfaction given, more than justifies the expenditure.

Regarding the employment of trailers—we strongly recommend them where long hauls have to be made, and where road laws permit. Care must be taken, however, in employing them only where you have a sturdy power plant, and a low gear reduction to allow of ease in starting.

In case where long hauls have to be made, and before reaching point of destination, bad road conditions arise, it is good policy to transfer the load on to a team which can be stationed there and which can better deliver where goods are needed. This policy has been employed by the Dominion Sewer Pipe & Clay Products Industries Co., Ltd., with every satisfaction.

The above few suggestions will, I feel sure, be endorsed by those of my hearers who are already operating motor trucks and I am confident that those who may be considering the purchase of mechanical haulage equipment will find some helpful hints that will benefit their own business and prove in practice our claim that a motor truck is suitable for your industry, when intelligently operated, and the factory cooperates towards speeding up their methods in keeping with the truck's ability to handle more products be handled by non-mechanical means, for the same amount of investment.

* Read before the Convention of the Canadian National Clay Products Association, Montreal, May 26.

Written for The Clay-Worker.

MILWAUKEE AND WISCONSIN NEWS.

THE CLAY INDUSTRY in Wisconsin is sharing in the prosperity which has developed in the after-the-war period in the course of reconstruction. Clay products manufacturers of this state have now started their plants along peace time activities as the demand for clay building materials is assuming seasonable form such as has not been experienced since before the war. Construction work in Milwaukee and other cities of the state has created a demand for brick and other materials that has prompted the clay products manufacturers to great activities. Dealers in clay products are finding a ready market for their wares inasmuch as industrial, commercial and public building construction is well under way. Municipalities are resuming the programs of paving, sewerage systems and other work which increases the demand for clay products.

In Milwaukee construction work is continuing in large proportions. Figures compiled by Building Inspector W. D. Harper for the first six months of 1919 show a total of $6,892,932 as the value of construction work authorized. For the corresponding period last year the figures reached only $2,714,241. For the month of June, this year, permits reached $1,407,640, against $670,898 for the same month last year. The total for the present year is expected to be the largest in the history of the city and is likely to be in excess of eighteen millions. Conditions as they exist in Milwaukee indicate the similar prosperous situation throughout the state of Wisconsin. Reports from various points indicate that wholesome conditions do exist and that the entire state is sharing in the post-war prosperity.

The Schaller-Young Company has resumed activities at Edgerton, Wis. The pits and equipment have recently been put into condition and work started in manufacturing brick. The yards were practically idle last season, owing to the high cost of labor and fuel, but now that the manufacturers are realizing enough return for their product and there is a good demand for brick in this section, the yards are operating again.

Outside interests have invaded the Wisconsin field and are to make use of the natural facilities which afford splendid material for manufacturing brick. Plans for establishing a large brick yard on the Peter Shaff farm, just north of Two Rivers, Wis., have been announced with the closing of negotiations by Stadler Bros., Chicago, for the purchase of forty acres of the Shaff property. A yard was formerly operated on the property but was abandoned some time ago. The new owners expect to go into the manufacturing end on a large scale inasmuch as they have a large outlet for the product through their Chicago connections. A. BADGER.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XXXIX.

Kiln Dampers.

THE damper in an economizer kiln has been a perplexing problem. The relative vacuity greatly increases the leakage which materially intereferes with the operation of the kiln. In the older types of kilns and in some modern kilns, the dampers are seated, and the flues being within the kiln walls and frequently subjected to a red heat, the deterioration of the dampers is rapid and their effectiveness materially nullified.

We have used flanged circular covers with an annular flanged seat, sealing with sand, but the covers would bulge, the frames warp, and the sand be carried away by the strong draft.

Fire clay blocks on a flat seat were better but were subject to frequent breakage and were difficult to replace. Cast iron dampers in a flat seat were still better chiefly, however, in that the construction was such that the dampers could be readily replaced, and this we consider an important factor in any kind of a permanent damper.

A sliding damper is practically worthless in an economizer kiln, with the possible exception of a heavy fire clay block, or blocks in a cast iron frame, set at such an angle that the weight of the damper will hold it firmly on the seat.

A widely used damper is a conical valve in a seat adapted to it. The seat may be a fire clay block or cast iron, and the valve is usually cast iron. This type of damper holds its shape fairly well but at best it is far from satisfactory.

The hood or goose-neck is the only satisfactory connection between kiln and flues. When it is removed and the openings covered and sealed, the disconnection is absolute. There may be some leakage around the covers but they are fully exposed on the kiln top or on the ground and can be readily inspected and tested. The use of hoods has solved another problem. The flue system in a modern kiln is complicated and there are frequently cross-overs. Ordinarily in making such cross-overs one set of flues must be under or over the other, but with hoods for the cotnnections the flues may usually be on the same level.

It frequently happens that one flue serves two or more purposes, for instance, to supply gas during the burning, for hot air during the cooling, and perhaps for draft in the advanced compartments. The hood or goose-neck will make each of these connections without any possibility of interference from the other two.

Open Top Economizer Kilns.

The open top kiln has been illustrated and described under the head of up-draft kilns.

Ring or Tunnel Kilns.

Efforts to develop an economizer operation during the latter part of the eighteenth century and the early years of the nineteenth century are recorded, but the first kiln having the basic principle of the ring kiln was patented by Arnold in 1839, and although a failure yet to it may be traced the cause of the nullification of Hoffman's later patent.

Arnold used a horizontal transverse flue for each section in the bottom of, or under, the ware, in which the firing was done, and the position of this flue was fixed. The gases rising from this combustion flue passed forward through heating and water-smoking sections until the heat value was practically exhausted, when they were drawn off into the stack. The combustion air entered through the open sections and advanced through the cooling sections to the burning section.

The Hoffman kiln had no fixed combustion flue or shaft but instead vertical firing shafts were provided in setting the ware as in the tunnel kilns now in use.

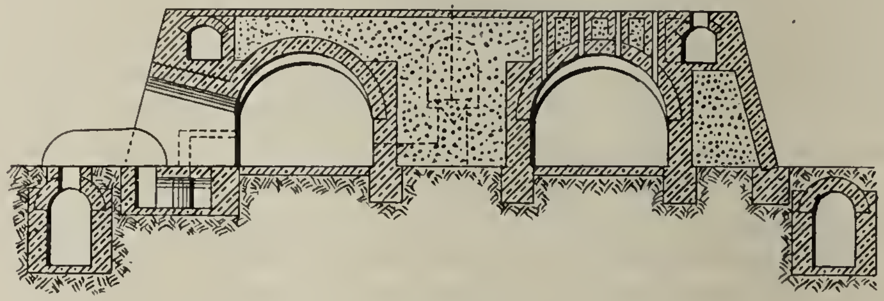


Figure 138.

The Hullman kiln, patented in 1854, was distinctly annular since it has the annular tunnel enclosing an annular smoke flue with the smoke stack in the center.

The Hoffman kiln was patented in 1858 by Friedrich Hoffman and A. Licht, and though the patent was twice extended it was finally abrogated in 1870.

The credit for the ring or tunnel kiln known the world over as the Hoffman type of economizer, belongs to Hoffman because he made the kiln a success, whether he originated the basic idea or not.

The annular plan has been replaced by the rectangular arrangement of the tunnels either as a single construction with a division wall separating the tunnels or as separate parallel tunnels connected at the ends by circular tunnels (a flattened ellipse) or simple cross-over flues.

Fig. 138 is a cross section and Fig. 139 a plan of a Hoffman type of an economizer kiln. The kiln illustrated is a marked advance over the original Hoffman kiln, or any kiln designed by Hoffman. There have been many modifications of and improvements on the original kiln. As previously mentioned, the original kiln had a circular tunnel, with included smoke flue and central stack. This gave way to the oblong and rectangular arrangement of the tunnel, and finally to separate tunnels—independent single kilns—connected at the ends thus combining them into a fully continuous kiln. The earlier rectangular kilns, and some of the modern ones, have the draft flue in the longitudinal division wall, with inlets from the tunnel at the floor level, connecting with the main draft flue by uptakes, and the draft is controlled by dampers operated from the top of the kiln, as shown in dotted lines in Fig. 138.

The stack, as stated, in the circular kilns was in the center, and in the development of the oblong kiln it was natural to place the stack somewhere in the center wall between the parallel tunnels. If the stack draft is to be used, the stack should be included within the kiln walls, because we carry the gases through the ware until they have given up their heat and become fully saturated wth moisture. The operation of the kiln depends upon the buoyancy of the gases leaving the kiln, which constitutes the draft, and where the stack is within the kiln walls, its base is kept hot by conduction and the draft is stronger in consequence. The importance of this is evident from the previous discussion of stacks. In some kilns the draft is from the top by using a hood (goose-neck) over the feed holes on top of the kiln or over special draft holes through the crown and extending the hood to cover a corresponding opening through the top pavement of the kiln into the central draft flue.

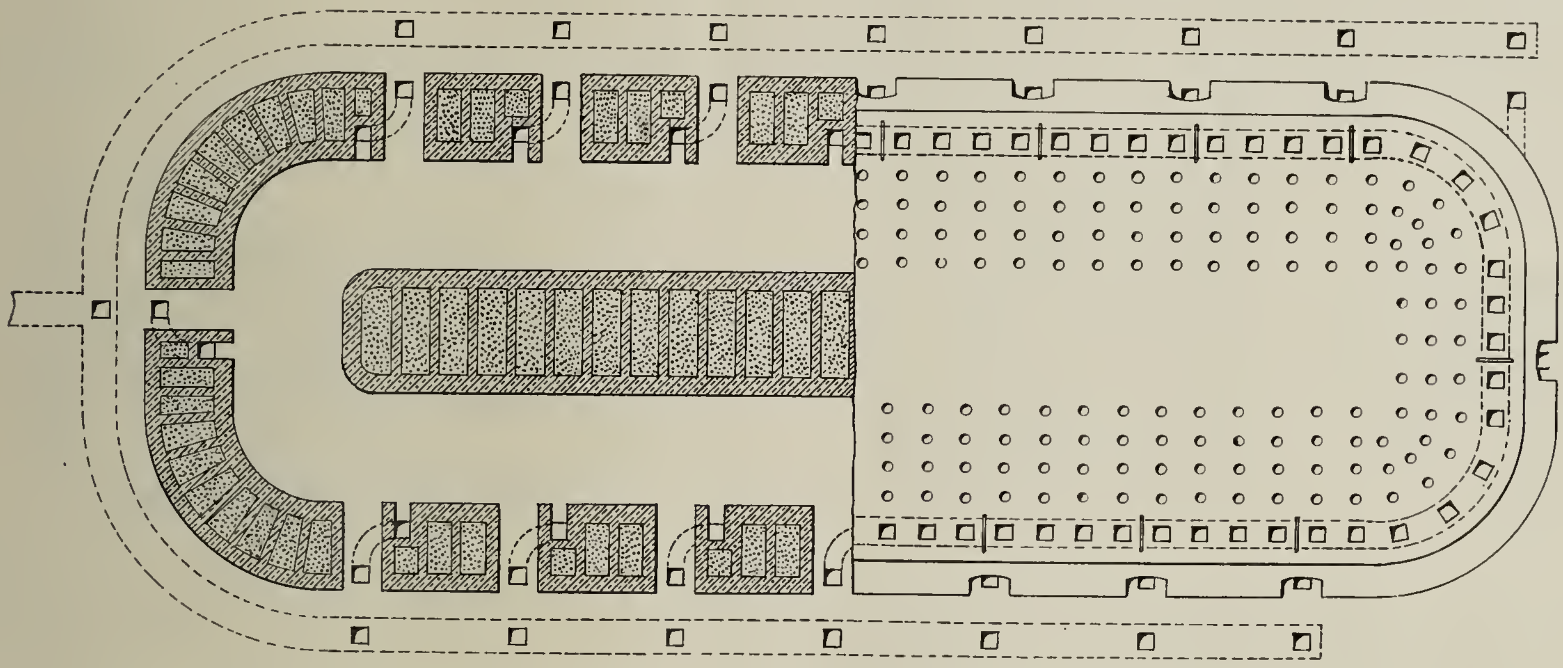


Figure 139.

Where the stack (or fan) is outside the kiln walls, a down take flue draws the gases into a transverse flue under the kiln floor and thence to the stack or fan.

In the above described draft arrangement the draft connections are through the inner wall, which has the effect of drawing the heat aawy from the outer wall, where, in consequence of radiation losses and leakage, it is essential the draft should be the strongest.

The draft connection is always a number of compartments ahead of the burning compartment and one sided draft has no effect on the burning but it does not affect the water-smoking and heating up and thus retards the rate of progress. To correct this, one kiln had the draft opening in the outer wall, then down and back under the kiln to the central division wall and up into the main draft flue.

Then followed the placing of the draft flue under the tunnel floors with connections through the outer or inner wall; later we find the draft flue under the outer wall; and finally it is placed outside the kiln walls with goose-neck connections to the kiln.

These changes are partially illustrated by Fig. 158, Fig. 159, and Fig. 160. In Fig. 158 we have the annular kiln, annular smoke flue, and central stack. In Fig. 159 we have the early rectangular form with a longitudinal central draft flue and the stack within the kiln wall. When the stack was placed outside the kiln wall, the arrangement in its final development for a single kiln became that shown in Fig. 139 and the plan of the modern kiln is shown in Fig. 160 with the detail of Fig. 139.

Dampers which were often necessary when the flues were within the kiln wall gave a lot of trouble and always leaked more or less, and the final location of th eflues outside the kiln walls with goose-neck connections was the perfect solution of the damper problem.

The earlier kiln had no advanced heating flue by means of which hot air is by-passed from the cooling sections to the water smoking sections thus overcoming or reducing the scumming and swelling difficulties, and increasing the drying efficiency, thereby correspondingly increasing the rate of burning. The advanced heating flues are in the upper kiln walls and connections from the cooling sections to the water smoking sections are by means of hoods covering feed holes in the top of the tunnel and corresponding holes in the top of the advanced heating flue. This is illustrated in the description of open top continuous kilns. In the kiln illustrated the advanced heating flue is in the outer wall but it may be placed in the wall between the tunnels, especially if the draft flue is elsewhere. Where the main draft flue is in the midwall, we mainly still have the advanced heating flue in the same wall, either alongside or above the draft flue.

We speak of sections and compartments in the tunnel kiln, but in the tunnel kiln itself there are no divisions. For convenience in setting and unloading the kiln wickets are spaced from 12 feet to 16 feet apart, and the draft connections are correspondingly spaced. In setting the kilns we fill the tunnel from one wicket to the next, and blanket the draft with paper pasted to the face of the set bricks. This constitutes a section and each section has a draft connection and so long as the paper dampers remain in place, each section may be water smoked by the hot air brought from the cooling sections through the advanced heating flue. When this stage of the process is finished the connection with the advanced heating flue is broken, and holes are torn in the paper damper nearest the fire sections and as the fire advances, the damper is ignited and thus completely removed.

In one kiln, perhaps in several designs, a drop or apron arch, shown in the illustration, is introduced in the kiln crown at intervals of 12 feet to 16 feet. This arch drops 12 inches to 15 inches below the kiln crown and it is simply a diaphragm to deflect the gases and air downward among the burning and cooling bricks. Without this arch, especially where the ware is not set close to the kiln crown and where the settle is considerable, we have a continuous free passage between the crown and the ware along which the air will move and the purpose of the drop arch is to break up and deflect this movement.

Many engineers hold that all the heat in the kiln is useful in the kiln operation, and that no heat should be taken for outside work. One prominent tunnel kiln designer provides openings in the kiln crown connecting with wall and underground flues leading to an independent dryer and uses the heat of the cooling sections for drying purposes outside the kiln and may be advanced as rapidly as the bottom ware can from the kiln, must be replaced by fuel burned in the kiln but in view of the fact that combustion in the kiln is absolutely complete and smokeless while that in an independent furnace is very imperfect, it is reasonable that it is economical to generate heat for drying purposes in the kiln. Such a kiln will show higher fuel consumption than a kiln from which no heat is taken, but if we add the latter the fuel required to dry the ware, the balance will be in favor of the former.

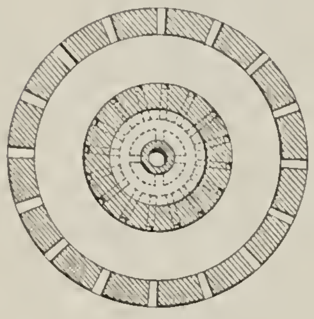


Fig. 158.

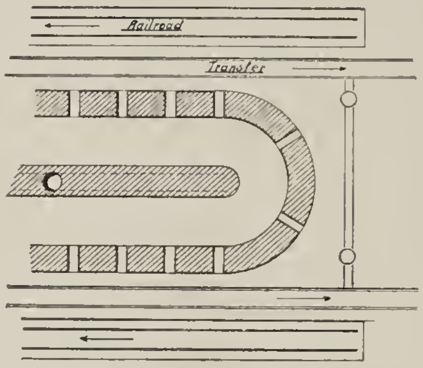


Fig. 159.

The same kiln designer introduces furnaces in the wickets and these use cold air as do the furnaces in any periodic kiln. The top firing, as in any direct coal fired kiln, is through feed holes in the crown, vertical shafts in the set ware, into trace flues in the set ware at the floor level. These fires are kept in advance and serve to burn the ware in the bottom of the kiln and may be advanced as rapidly as the bottom ware can be burned. Following these, the side fires are started and the flame from them surrounds the mass of ware, sides and top and completes the operation.

There is much to be said, pro and con, relative to such a kiln which departs so radically from the principles of an economizer kiln, but in view of the fact that the kiln has been adopted by American clayworkers in greater degree than any other economizer kiln, and that it is successfully burning the difficult paving brick product, the merit of the kiln must be conceded.

The self-contained rectangular kilns require that the ware shall go in and come out the same doorway in the face wall of the kiln. If depressed railroad tracks are put on each side of the kiln to handle the burned ware as it comes from the kiln, and since transfer cars paralleling the depressed tracks are needed to handle the ware from the dryer to the kiln, there is considerable interference in the work.

The modern kiln, having independent tunnels, with two wickets on opposite sides for each section, permits the green ware to be handled in the space between the batteries, while the burned ware leaves the kiln through the wickets in the outside walls.

The tunnel kiln is not as convenient for setting as the chambered kiln. The ware is delivered to the kiln over a transfer track, and thence into the kiln on a spur track, and from this to a transfer car inside the kiln to the working face . When a car is unloaded it must be transferred back to the wicket, and out before another load can be brought in. In some instances a portable turntable is used in the kiln in the place of the kiln transfer track and car, but this is simply a matter of preference and is without effect on the periodic setting operations.

The compartment kiln with wide wickets permits the use of a double track as in rectangular periodic kilns, and no time need be lost by the setting gang in consequence of switching cars in and out.

The setting in tunnel kilns requires trace flues in the bottom and vertical flues corresponding with the top feed holes. A similar flue system in the set ware is required in the direct coal fired chambered type of kilns but the gas fired chambered kiln has the same setting as in a down-draft kiln.

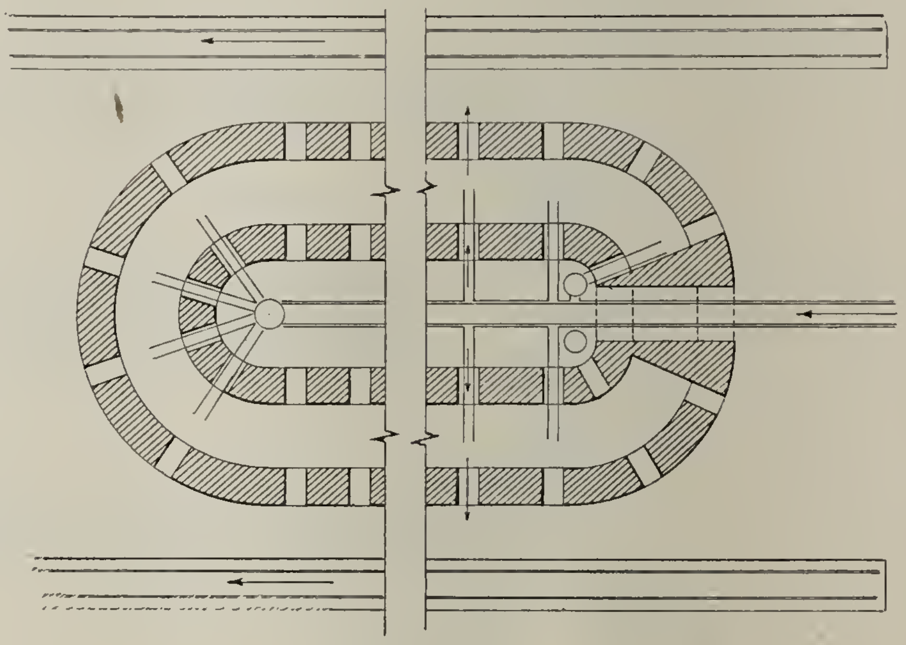


Figure 160.

A tunnel kiln should not have fewer than 16 sections and preferably 20 or 22 sections. From 6 to 9 sections are cooling, 2 to 3 sections burning, 3 to 4 sections heating up, 2 to 3 sections watersmoking, and two or more sections for working space. Occasionally a kiln is built of such a number of sections, that it may be double fired, or three, four, or five sets of fires, but such kilns are merely combinations of several kilns in a single construction, and each fire has its related cooling, heating up, watersmoking, and working sections, and it is operated as an independent kiln.

A description of the many ring kilns tried out, in use, or on the market in this country would be voluminous. They all start with the Hoffman kiln and the improvements consist of a rearrangement of the air and gas flues, the addition of advanced heating flues, drop arches, perforated floors, permanent trace flues, outside furnaces, adaptation to producer gas, oil, etc. We do not wish to intimate that the changes and additions have not improved the kiln—quite the contrary. The kiln in its highest development occupies a prominent position in the clayworking industries at the present time, probably ranking first among economizer kilns in the quality of output.

(To Be Continued)

Written for The Clay-Worker.

HEARD IN NEW ENGLAND.

The CLAY-WORKER SCRIBE recently made a trip through four New England States, Massachusetts, Connecticut, New Hampshire and Vermont and found that the brick business promises to be good this year. Everywhere preparations are in progress for the present year and looking forward into the following year the situation looks even better. Talks with leading business men in a good many large and small towns indicate that the conditions which now prevail will lead to a building development such as has not been seen for a long time, perhaps never before. It is trite to say that the towns and cities are all greatly underbuilt. In that they are no different from the others elsewhere in the country, yet, in some respects New England seems to have suffered more than some other regions. Before the war the disturbances caused by the failure of the New York, New Haven & Hartford railroad, the principal transportation system in the section, caused a good deal of difficulty. Then came the war that completed the financial disturbance and insufficient time has elapsed since the war closed for the towns and cities to recover their equilibrium. Therefore, anything which has been, or can be done now, to help the development of the region is of benefit to everybody there. War work helped some, but when it stopped some of the towns and cities suffered from congestion, and they haven't wholly recovered yet. But the outlook is better and leading men say that when the situation clears no one will have any fault to find with the way business improves.

Hartford, Conn., according to the statement of a number of business men, is on the eve of a good sized boom. Much underbuilt, the city needs new office buildings, new factories and additions to old ones, with a great many new dwellings of various sorts. The brick yards in and about Hartford are said to be in good condition, with one or two exceptions, and business is picking up in all of them. The Nevells Brothers have leased their yards in the western part of the city to the Sponzo Brick Company for five years, and the Sponzos are working a full complement of men, or as near it as the condition of the labor market and supply permits. They were shipping the last of their second kiln this season and the third was burning. Considering the locality this is a good start for the season. All the brick were sold as soon as ready for delivery.

The Wilson Brick Company, located in the same portion of the city, is operating full handed and to capacity. They are laying up kilns for burning and it was said that the orders on their books are sufficient to absorb everything that may be produced this year. They are getting good prices and the outlook is very favorable.

Michael Kane, of the Kane Brick Company, says that never has the brick business opened a season better, and that seems to be the feeling of all the brick men in the city. The yard will operate as near capacity as it can, the principal handicap being the shortage of labor. But that seems to be improving of late, though owing to the fact that so many foreign born who formerly worked in the brick yards have gone home, brick men find it difficult to get men to work about the yards. Mr. Kane is making his deliveries with a truck and finds it much better than to depend upon the methods which formerly prevailed.

The price of brick in Hartford is from $15.00 to $20.00, though around $18.00 seems to be about the average price for common brick. Some are selling for less, and perhaps others bring more, but the average is the same figure named. While this did frighten prospective builders they are becoming accustomed to the cost now and will buy just the same.

Thompsonville has one large plant operated by Brower & Best. This plant did not run at all last year, and early in June had not begun operations this year. The firm is troubled now by having to haul its output to the train and that hardly proves profitable in these times. Until better transport conditions prevail the yard will probably remain closed. Thompsonville is planning considerable building this year, too, but the situation apparently does not warrant the expenditure required to put the yard in shape and get to going.

Without stopping to specify it may be sufficient to say that at Berlin, Conn., the yards are in operation, with two exceptions, and possibly these will open later. Not for three years has business been as brisk about the Berlin yards as it is now. And it was said that they have sufficient orders in hand to keep them going for many months to come, perhaps through the season. Some building is promised there this year, with still more important developments contemplated in the not distant future.

In the district of which Springfield, Mass., is the center the conditions favor good business in brick all this season. The yards are in operation and seem well favored in regard to orders. A good deal of building will have to be done to catch up with need for new houses and factories. War work caused the enlargement of some factories which can be used for non-war industries, but notwithstanding this the situation indicates that further factory space will be needed. Brick are selling at from $18.00 or so up for small lots. Sometimes the price drops as low as $16.50 to $17.00, but generally more than this is wanted.

Elmer K. Phillips, of Holyoke, Mass., is running to as near capacity as he can, with some new machinery installation. He intends taking advantage of whatever opportunity may develop in the building world this year.

The Holyoke Brick Company began operations very early this year and their product already numbers among the millions. They have been able to take advantage of all the early orders for brick for building purposes and have obtained uniformly high prices for their offerings. With no brick left over last year because of the small production these companies have been able to secure a good deal of the early trade because they began their own work early. Favored with an early spring they could start early and they have had less trouble with help than most plants in New England have had.

South Hadley Falls, just across the river from Holyoke, has three yards, all of which are operating to capacity. The Hampshire Brick Company is working a full complement of men and has good orders ahead. M. O'Connell's Sons have sufficient orders to keep them busy for some months and the Lynch Brothers Brick Company is doing a good business. All these yards have succeeded in getting men and their orders justify the belief that they will do a good business all the season.

At Northampton it was said that building operations will be rather extensive this year. Smith College will erect several new buildings and a good many houses will have to be built. The Hones Brick Company is doing a good business thus far and trade promises to be good with them during th eremainder of the season. It was said that some of the other companies are doing even better, and that all are expecting the most profitable season they have had in some years.

In all these towns the price of brick is about $18.00, varying up or down according to local circumstances. Where demand exceeds the supply, as it does in many of the towns, the price naturally goes up and $20.00 or even more is paid. While when opposite conditions prevail the situation is reversed. The market is, therefore, somewhat dependent upon the local demand and that thus far has been active all this season. Buyers are searching for brick in some localities, while in others they are waiting until the first burnings are ready for distribution.

HIRAM.

MARKETING BRICK AND TILE.

The Lumber Dealer as a Factor. Pertinent Suggestions for the Betterment of the Clayworking Trades.

IT HAS BEEN HINTED at previously, and mentioned incidentally, but now it is time to come out flat and to emphatically state that the retail lumber dealer is a factor of growing importance in the distribution of clay products. Indeed the importance of this factor in the sale and distribution of brick, hollow tile, sewer pipe, drain tile, and flue lining is already such that the clayworking industry should be giving more serious thought to the subject of an established policy toward the dealers, and to the development of such trade relations as will make for more satisfaction and better business all around.

There are in round numbers approximately 25,000 retail lumber yards in this country, and somewhere between 50 and 75 per cent. of them handle clay products and various other items than lumber. In the larger cities the lumber yards confine themselves more exclusively to lumber, doors and mill work, while the brick and clay products lines are handled through other channels. This is because in large centers specializing is the order of the day, and is practical; while in the smaller cities and towns the one dealer in building material logically handles everything that it is practical for him to handle which enters into construction from foundation to roof. As a rule this dealer is primarily a lumber dealer, lumber having for years been the most conspicuous item in the building operations of such localities, thus giving a name to the business which remains even after other items have grown to important proportions.

In some states—mainly those east of the Mississippi—the dealer is an individual institution. One man or one concern may own and operate one, two or three branch yards, but in the main they are purely local institutions. In other states—western prairie states mostly—what are known as line-yard institutions prevail largely. One concern with a central office at some important center will own and operate say from 25 to 100 yards, located mainly in small cities and towns. Thus we have in a broad sense what may be called two classes of yards or dealers to consider, the individual dealers, and the line-yard dealer. The main difference is in the manner of making purchases. Among the line-yards the general practice is for the purchasing to be done from the main or central office, which buys in quantities in keeping with the needs of the entire line of yards. Some local buying, which may at times include clay products, is done by the individual yard managers, but the general policy is to concentrate the buying at the main office. This makes the doing of business with the line-yards a somewhat different propostion from the other class, or individual yards. This is a matter of detail that should be kept in mind, though it does not alter the main fact that more business may and should be done through the retail lumber yards.

The local lumber dealer is logically the center of supply and information in the matter of building materials, so, with the exception of the larger cities as pointed out above, he is the natural channel through which to direct the trade of many lines of building material. The cement people recognized this important fact something like fifteen years ago, and they have profited greatly from having seen a light and followed it. Prior to that time cement had been sold through all manner of channels, general merchants and hardware men ordering a barrel or two now and then when they needed it or thought they might sell it. But that is now a thing of the past. The cement men early realized that their big chance was to interest the lumber dealer, make him the exclusive handler of their product in his community, and get him interested in pushing cement. Soon instead of shipping a few barrels now and then, as they had been in he past, they were shipping cement to the lumber dealers in carload quantities, and both they and the dealers were profiting by it, and at the same time they were able to supply cement to the consumer for considerably less than it had cost formerly.

Lately the composition roofing people have taken up with the same idea, and right now seem to be driving for the same goal. This roofing, in time gone by, like cement, has been sold through various merchandising channels, none of which have been big enough to encourage effort at special development. Now there is a gradual closing of these casual channels and a concentration upon the local lumber dealer as the best bet for the development of a large volume of trade. The dealer gets an exclusive agency and all sorts of help and encouragemnt in trade development, so that now roofing too is beginning to move in carload quantities where formerly it was a few rolls at a time by local freight.

These things not only serve to show the trend of events, but they point the way plainly to the clay-working industry, a way through which much business may be done, and a way through which to more easily and quickly create public interests in that vital subject of building with brick. Some know of this already and have been fairly active in the development of business relations with the lumber dealer. Also there has right along been some business doing through this channel by the local lumber dealer seeking out the clay products man because he has had a call for some of his products. And that is the sea of the trouble, which we need to get at—there has been too much waiting for business to come through this channel and not enough going out after it.

During the past few years the writer has been asked by many and various lumber dealers where they might be able to obtain this or that clay product, the inquiries including almost everything from common brick to roofing tile. In one case a dealer in a city almost large enough for the various lines to be specialized in exclusively had an urgent need for hollow tile for partition work in a fireproof building, and didn't know where to turn to get them. And this is but a sample of many instances which go to prove a lamentable lack of using their opportunities on the part of the clayworkers. This woeful lack of advertising and exploitation is of itself enough to explain the lack of live interest in clay products on the part of the retail lumber dealer, but some other reasons have been encountered, one of which is discouragingly meager returns from handling some of these products.

Take the item of brick as an example, and while some yards carry it in quantities for supplying promptly the call for flue construction, the cost of unloading and handling puts a heavy handicap on their opportunities when there is a real job of brick construction to be done. Too often the brick man has gone after this direct with the contractor, or has offered the local lumber dealer such a meager commission that it does not encourage effort. It is not much wonder that the dealer under such circumstances uses his influence in favor of wood construction, and is not a bit inclined to boost the brick game. It is not that he is "married to" or foolish about lumber—it is a matter of business profits.

Of course the only answer to this is for the brick man to make the situation more inviting from a profit standpoint that it has been in the past. And some are doing this and doing splendid pioneer or mission work that if followed up will mean a new era to the clayworking industry. There is a particular case in mind where a brick manufacturer has mapped out a breadth of territory which he thinks he is entitled to trade in, and has set about systematically to make the retail lumber dealer his agent in his community, pretty much as the cement men did years ago, and as the roofing people are doing now. But brick handling is something different from these other items, it is an item that does not stand well the expense of handling. The big jobs are practically all direct shipments, so this reduces it to more of a commission or agency basis than to a merchandising proposition. This brick man, to make the agency proposition interesting, strives to make it worth while in returns. The general basis is 10 per cent. to the dealer, with 5 per cent. off additional for prompt payment, and the dealer is protected and compensated for all brick sales in his territory.

As a result of this policy the brick man in question is building up a splendid line of connections, which keep him informed when new jobs are in prospect, and which simplify his collections as well as his sales work. There is in contrast to this the case of an old established clayworking firm which should have a dominant place in the trade over a wide territory, losing both favor and trade through failure to recognize the opportunities and make the best of them. In earlier days much trade came in from lumber dealers, simply because they knew of no other place to go, but it was small trade so was not looked after as it should be, with the very natural result that the lumber dealers turn elsewhere whenever the opportunity to do so advantageously presents itself. It might do you clayworkers who read this, good to ask yourself the question of which class you are in, for it would at least set you to thinking, and that is what we need now—more thinking among the clay-workers about trade development through the local lumber dealer.

There are several lines of clay products in which the lumber dealers in the smaller cities and towns are interested or could be interested in, many of them being carried regularly in stock now. In addition to building brick, there are fire brick and the kindred products of slabs, flue linings and chimney tops; sewer pipe, hollow tile, drain tile, and roofing tile. And in practically all these lines the volume of trade passing through this channel is growing. There is a good chance that with some of the items the volume of trade can be doubled, quadrupled, and then some, during the next few years if the proper effort and spirit is put into it. Are you going to put it there?

APPRECIATION IN BUILDING VALUES.

One of the interesting developments of the year, coming out of the higher cost of building operations, is a recognized increase in the value of buildings already erected, and in the value that building improvement adds to real estate. In one of our important cities a committee interested in promoting more building activity made some calls upon trust company managers and others with money to loan to get a definite idea on how they would appraise improved property in making mortgage loans. Some of these said that broadly speaking they considered that improved property had appreciated rather than depreciated in value during the war period, and the tentative amount of increase named was 20 per cent. As bearing this out, real estate sales records show many instances where homes built and lived in from two to five years have been sold for 20 per cent. more than the original cost. Of course, the better the building has stood the test of time the more it has appreciated in value, which means that a good brick building put up five years ago is worth more today than it cost at that time. There is good argument here for the use of clay products, and for the erection of buildings which will grow in value rather than depreciate from the ravages of time.

What we need is not just to make citizens of the deserving foreigners in our midst, but to made **good citizens** of them, that's the thing.

BRICK AND BUILDING NEWS OF EVANSVILLE AND SOUTHERN INDIANA.

IN EVANSVILLE AND other towns and cities in southern Indiana building is picking up right along and indications are that the year will close with ten fold building done over last year. The building operations in Evansville for June showed an enormous gain over June of last year and it is expected that July will show a big gain over the corresponding month of last year. Many manufacturers here are erecting additions to their plants including the Evansville Furniture Co., the Karges Furniture Co., the Wemyss Furniture Co., the Wertz-Klamer Furniture Co., the Schelosky Table Co. and the Faultless Caster Co. The aggregate of these improvements most of which are of brick construction will total several hundred thousand dollars. Several other good building jobs are reported in the city. While there are few new residences being built in Evansville this season, there is considerable repair and remodeling work reported and brick manufacturers report that they are fairly busy and satisfied with the outlook. John Andres, secretary and treasurer of the "Build Now" campaign in Evansville, says he is satisfied that the campaign that was launched several weeks ago in the interest of building, has borne fruit and that more building is now under construction than would have been had not the campaign started. Mr. Andres has received letters and telegrams from many cities and towns in various parts of the country asking about the "Build Now" campaign in Evansville saying they desire to model their campaign along similar lines. Many of the towns in southern Indiana, southern Illinois and western and northern Kentucky are doing a good deal of building this season. Building booms are reported at both Sturgis, Ky., and Morganfield, Ky. A new court house for Spencer county is being erected at Rockport, Ind., a few miles east of Evansville, and the cornerstone being laid with imposing ceremonies, July 18.

In southern Illinois towns building operations are picking up nicely from reports received by builders and architects in the city of Evansville. Brick manufacturers and builders say that while they are looking for nothing like a building boom this year that they do expect to see a great boom next year, perhaps the greatest the country has ever witnessed. They say there will be no reduction in the prices of building materials this year, while on the other hand they are looking for prices on certain materials to go even higher than they now are.

The National Potteries Co. and the Helfrich Pottery Co., both of Evansville have consolidated, according to an announcement made a few days ago, and will hereafter be known as the National Helfrich Potteries Co. with a capital stock of $250,000. The two concerns will now be operated with one office force and from the same building. The two plants are located on St. Joseph avenue in the city of Evansville, separated by a distanc of only about eighty feet. The older of the two plants was built about three years ago. The directors of the new company are Aaron M. Weil, H. F. Weaver and Michael D. Helfrich. The pottery trade with the Evansville plant has been good for the past several months and practically all the plants are being operated on full time.

Henry C. Kleymeyer, general manager, and John Andres, secretary and treasurer of the Standard Brick Manufacturing Co., at Evansville are on committees to help arrange for the big centennial exposition that will be pulled off at Bosse Field in October and where the manufacturers and farmers will have a great many exhibits. It is expected that in the neighborhood of $100,000 will be spent on the exposition.

Many new streets are being put down in Evansville this year and in some instances brick is being used. There is to be a road improved in Perry township, Vanderburgh county, a few miles below Evansville and the road will be built of brick during the entire distance. More and more is brick being used each year in the construction of road building in southern Indiana and brick manufacturers say that people are just beginning to learn that brick is the best road building material that can be used. The State Highway Commission of Indiana will see to it that the Dixie Bee Line highway from Terre Haute to Evansville is one of the first roads to be built in this state, according to the latest information received and in sections brick will be used on this road. It is expected that brick also will be used on the French Lick-Evansville road that will be one of the early roads to be built in southern Indiana.

Frank Reed, brick manufacturer at Mt. Carmel Ill., was a recent business visitor in Evansville and reported trade conditions in his home city coming along all right.

Brick factories at Tell City, Ind., Huntingburg, Ind., and Henderson, Ky. have been doing a nice business during the past month and the manufacturers report that they are well pleased with the trade outlook.

A HOOSIER.

It is well for the aggressive business man to learn the difference between self confidence and self-conceit, for one helps and the other hampers.

The man who likes to wave a red flag should hurry up and make his home somewhere else, for the red, white and blue is the emblem of right thinking here.

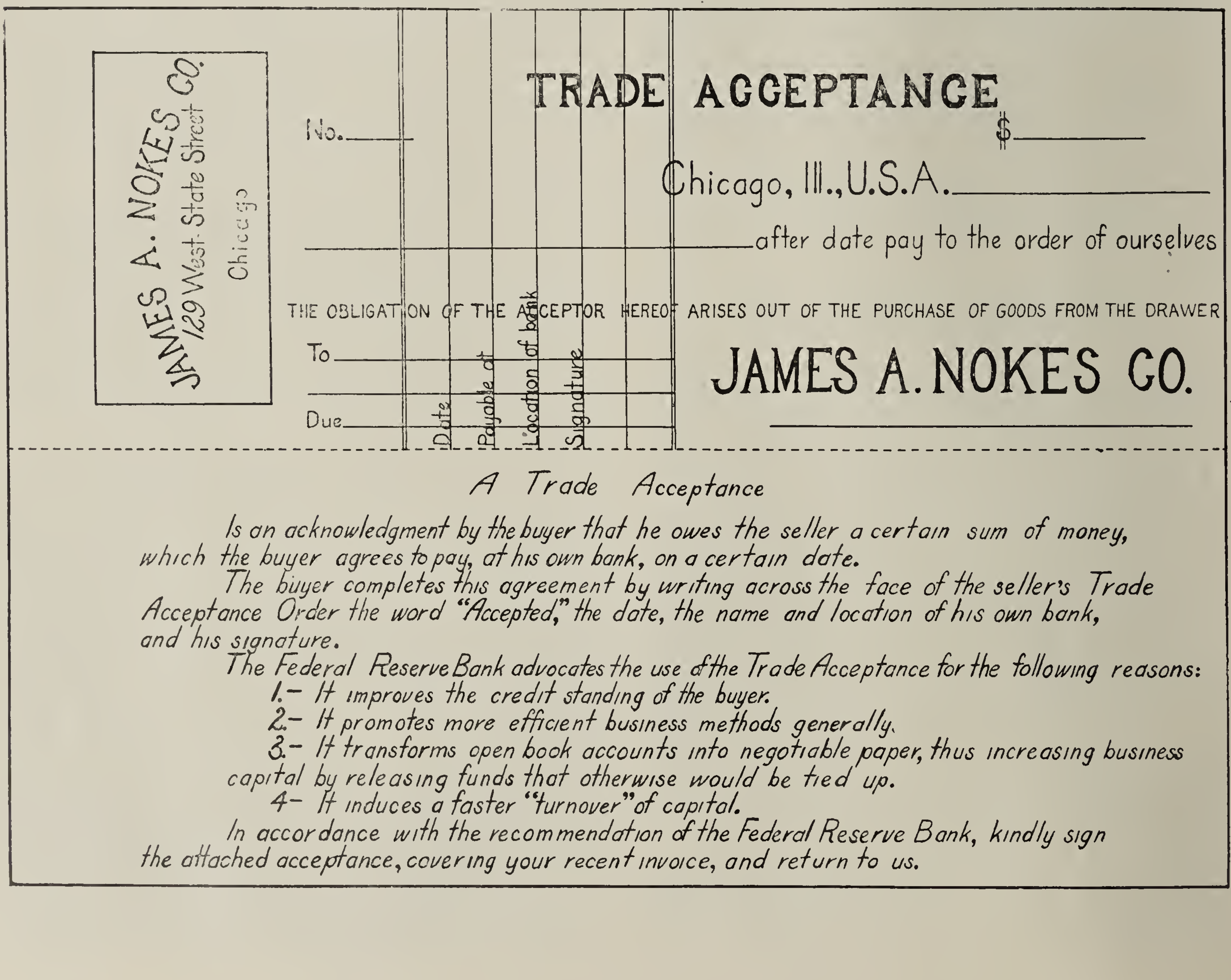
THE TRADE ACCEPTANCE AND ITS VALUE.

By R. Franklin Mundorff.

THE TRADE ACCEPTANCE for the settlement of merchandise accounts is a form that has recently been adopted by many of the progressive and up-to-date corporations and firms in the building supply business, especially the brick business as well as those of many other lines, and many more are discreetly feeling out their customers with the view of incorporating the trade acceptance as a permanent method of trading. While the trade acceptance might be said to be new as far as the United States is concerned, it has gained great impetus during the past three months and is but an orderly development of our commerce, resulting from the establishment of the federal reserve system.

The Origin of the Trade Acceptance.

The banking systems of the country govern the commerce and developments of commerce according to the facilities which the banking fraternity can place at its disposal. The act governing the banking systems of this country has long been outgrown by the commerce of the nation and the restrictions which this act made necessary compelled commerce and industry to conform with the banking system in its most narrow sense. The framers of the federal reserve act had paramount in their minds when they enacted that most pleasing bit of legislation, the introduction into this country of well tried banking principles that had proved most satis



JAMES A. NOKES CO.
129 West State Street
Chicago

No._____

TRADE ACCEPTANCE

$________

Chicago, Ill., U.S.A.____________

________after date pay to the order of ourselves

THE OBLIGATION OF THE ACCEPTOR HEREOF ARISES OUT OF THE PURCHASE OF GOODS FROM THE DRAWER

To________

Due________

Date

Payable at

Location of bank

Signature

JAMES A. NOKES CO.

____

A Trade Acceptance

Is an acknowledgment by the buyer that he owes the seller a certain sum of money, which the buyer agrees to pay, at his own bank, on a certain date.

The buyer completes this agreement by writing across the face of the seller's Trade Acceptance Order the word "Accepted," the date, the name and location of his own bank, and his signature.

The Federal Reserve Bank advocates the use of the Trade Acceptance for the following reasons:

1.— It improves the credit standing of the buyer.

2.— It promotes more efficient business methods generally.

3.— It transforms open book accounts into negotiable paper, thus increasing business capital by releasing funds that otherwise would be tied up.

4— It induces a faster "turnover" of capital.

In accordance with the recommendation of the Federal Reserve Bank, kindly sign the attached acceptance, covering your recent invoice, and return to us.

factory in Europe. When this act was finally passed the American banks began to do their own accepting in so far as foreign commerce was concerned, which was known as the dollar exchange. Prior to this the American banks were forced to have their foreign bankers do the accepting for them. Thus, it can be seen that this was the first step toward the trade acceptance which is a merchant's bill of exchange for the settlement of domestic merchandise accounts.

Nature of the Trade Acceptance.

The trade acceptance is a "time bill of exchange," drawn by the seller on the buyer in accordance with the terms agreed upon between them, for trade custom, covering the invoice value, either partially or wholly, of a parcel of goods which the buyer accepts in the customary manner and makes payable at his own bank. This he returns to the seller and the transaction is closed, instead of trading together upon what has become known as the open account.

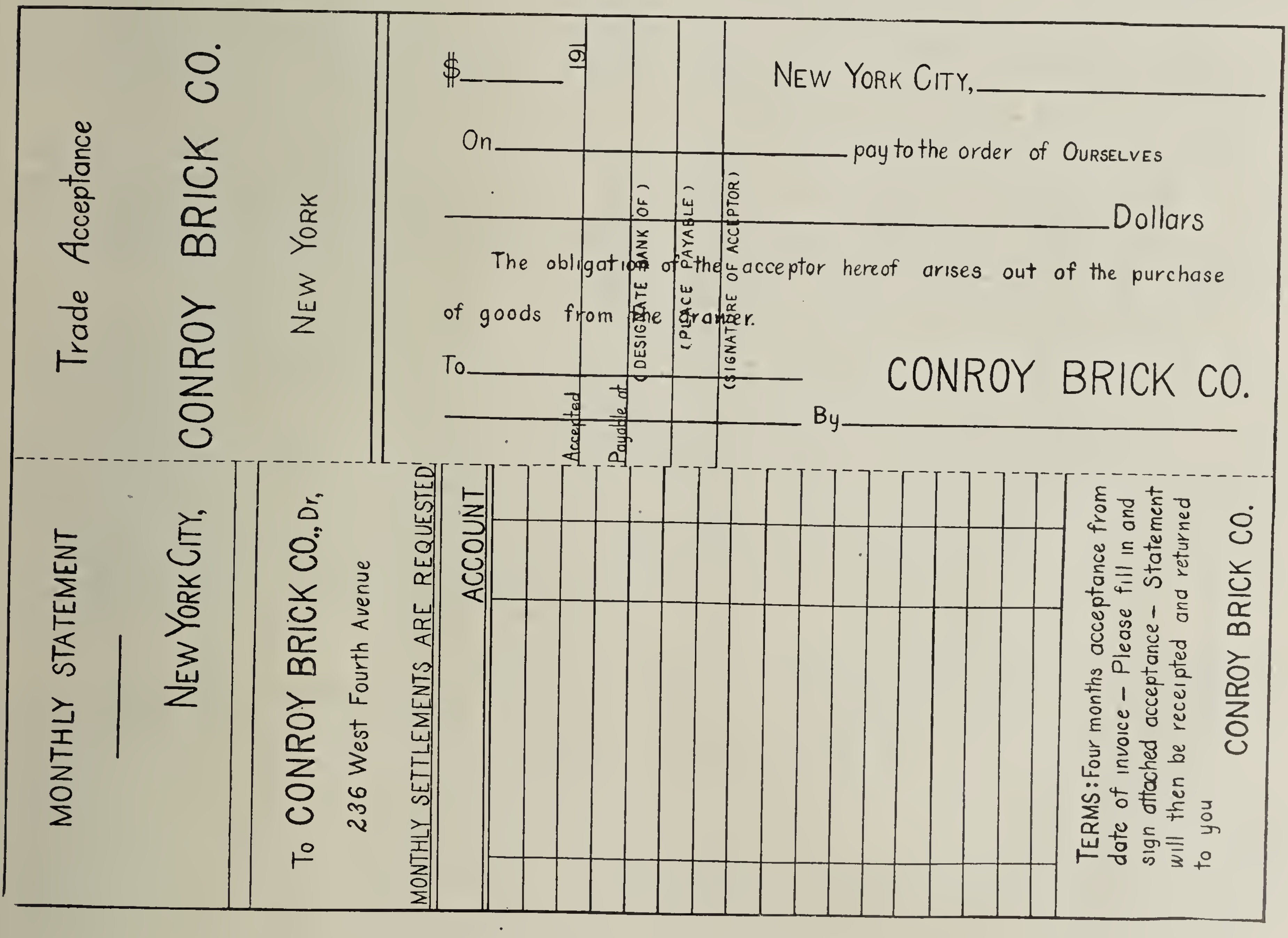
Open Accounts Unsatisfactory.

Because the open account has left the date of payment of an account a matter of vast uncertainty, it has become an exceedingly unsatisfactory agreement. The open account has often led to the bankruptcy court, but because there was nothing to offer in its place it continued to reign supreme in our business. Now, that such a worthy substitute has been found and proved satisfactory, the buyer and seller should both get together in good fellowship and inaugurate its use to improve the general situation.

The trade acceptances are legally in the same class of negotiable instruments as drafts and notes and are governed by the same law, namely, the uniform negotiable instrument act. The use of the trade acceptance is urged by the foremost leaders of trade and commerce and industry for many reasons. The one prime factor is that the trade acceptance insures the payment of merchandise accounts on the day they become due. Under the old system of open book accounts the payment of a merchandise account at due date is largely a matter of the convenience of the buyer and the seller has long been at his tender mercy. The trade acceptance further protects the seller in regard to the time of payment because it establishes beyond all question the delivery and acceptance of the full order of goods for which that acceptance is drawn and the habit of the buyer to gain time by arguing about quantities and amounts is loss to the progressive steps of our commerce.

Advantage of Trade Acceptances.

One of the great advantages that the trade acceptance will bring to the commercial world is that the accounts receivable of the merchants will become of a negotiable character. Heretofore, under the open account system the merchant's accounts receivable were represented by merely ledger entries which liquidated themselves most slowly, at the pleasure and convenience of the debtors. They have never been available to the creditor under the open account system, as a means of raising funds, however necessary that might have been for the seller. By transferring these accounts into acceptances the dealer has a tangible possession that he can



Trade Acceptance

CONROY BRICK CO.

NEW YORK

$______ 191_

NEW YORK CITY,__________

On__________ pay to the order of OURSELVES

__________ Dollars

The obligation of the acceptor hereof arises out of the purchase of goods from the drawer.

To__________

CONROY BRICK CO.

By__________

Accepted

Payable at

(DESIGNATE BANK OF)

(PLACE PAYABLE)

(SIGNATURE OF ACCEPTOR)

MONTHLY STATEMENT

NEW YORK CITY,

To CONROY BRICK CO., Dr.,

236 West Fourth Avenue

MONTHLY SETTLEMENTS ARE REQUESTED

ACCOUNT

TERMS: Four months acceptance from date of invoice — Please fill in and sign attached acceptance — Statement will then be receipted and returned to you

CONROY BRICK CO.

turn into money by discounting under the usual process and the conduct of business on the merchant's own capital would not be so difficult as many now find it.

The trade acceptance bears the greatest advantage to the small dealer or merchant, who finds it difficult to keep his account liquid. By the use of the acceptance the accounts are permanently liquid ones and it does not become necessary for him to hock his business and receivables to the so-called discount companies and pay the exorbitant charges that they demand. With the trade acceptance the small dealer's accounts are undisputably liquid and they are easily and quickly discounted by the first-class banks of the country.

The buyer loses the greatest advantage that he has long held in business dealings and it is that of stalling the seller for time. The trade acceptance does away with this in its entirety. The acceptances must be paid at due date or the buyer's reputation suffers a great deal and such acceptors will find business no longer to their liking.

The buyer in accepting the trade acceptance establishes himself as being one confident of meeting his obligations in stated and definite time and the man who gives the commonplace note is one who is marking himself as a weak individual who is running in arrears of his affairs. That is the chief difference between the trade acceptance and the note.

Jobbers' Views.

The trade acceptance is being quickly taken up by the manufacturers, wholesalers and jobbers, but it is slow to penetrate into the ranks of the retailers for the very good reason that the retailer is the one who will desire to hang on to the open account as long as it is possible for him to do so, for the purpose of the advantage that it gives him over the seller, for it is obvious that the retailer is the one who has most often abused the open account privilege that is now fast being done away with. The wholesalers and jobbers of course are the ones most capable of entering into the introduction of the trade acceptance. But the use of the trade acceptance and its guarantee has stamped itself so indelibly upon the portion of the public that has rubbed shoulders with it that public opinions and the consensus of opinion that the trade acceptance is the most desirable form of trading will force the retailers to incorporate the new system. The trade acceptance places the wholesalers and jobbers in the position of being able to liquidate their receivables and make them more available, while it puts the retailers' business upon a sound basis and strengthens the entire commerce of the country. The sketches shown herewith of trade acceptance forms are those which the Credit Men's Association and the Bankers' Association indorses as extremely timely forms for the introduction of this new method of trading that undoubtedly is to become most general and govern and dominate trade and commerce in general.

What Trade Acceptance Means.

When you receive a statement with a trade acceptance attached, look at it from this standpoint:

It is not a note. It is simply a formal agreement to do just what you intend doing; pay that bill when due.

If you wish to take your discount by paying cash, that's the best thing you can do.

But, the next best thing—both for seller and buyer—is signing the trade acceptance.

Then, instead of an open account, the seller has bank paper which he can hold or negotiate; paying his bank for such accommodation if he wants it.

The buyer gains because he doesn't sign anything he does not know he owes.

Invoices and statements are watched more carefully. Bills are paid in their order. You are always conscious of just where you stand.

Dealers lay better credit foundations. They build on the seller's capital, for he can more safely extend a maximum credit line.

The man who buys from the wholesaler is the seller in turn to the consumer. He can—and should—use the trade acceptance with his own patrons.

Beware the open, running accounts. Make definite clean-ups at short intervals with trade acceptances.

You'll quickly see their value to you. Extend the same support to the men from whom you buy.

Liquid credit from this source will enormously increase our country's trading capacity. It's sensible and patriotic business aid. Help it along.

GOOD ROADS SITUATION IS LIKE RAILROAD PROBLEM 50 YEARS AGO.

Lower Cost of Motor Transportation Means Lower Cost of Living, Says Motor Truck Manufacturer.

"ALONG WITH the great national movement for better highways comes the question of weight of loads, speed, and many other factors," says R. E. Fulton, vice president of the International Motor Company.

"In the solution of the matter, plain, ordinary common sense should prevail. Unimproved roads, in good weather when they are dry and sound, can stand a great deal of traffic with little or no damage. They can even bear tremendous loads if the width of the tire is sufficient. When these roads are solid, big steam traction engines, with threshing machines or corn shellers, run over them with no damage; in fact, with benefit as they act like rollers.

"Moderately improved roads likewise can stand much traffic in good weather. The big trouble with these roads is that they are not what can be called all year 'round roads. They should be improved to meet the normal requirements of traffic, so that full benefit may be derived from them at all times.

Large Loads Lower Prices.

"The weight of the load should be determined on the basis of width of tires. Routes between large cities or important commercial and industrial centers serve an enormous tonnage, and the larger the units in which this tonnage is hauled the greater the economy of hauling. These routes are main arteries of traffic, and anything which increases the cost of transportation on them is paid for by all the people, regardless of how far they may be from these main arteries. When it is taken into consideration that a 50 per cent. increase in the size of the unit hauled makes 15 per cent. decrease in the cost of transportation, the matter becomes one of great economic importance with tonnage running up into the millions.

Likens Roads to Railroads.

"On these roads the weight is fully taken care of by the 800-pound limit per inch width of tire. For every 800 pounds, an inch is added to the bearing surface of the tires. With the addition of a trailer the weight of the load can be doubled without doubling the strain on the road. You simply add to the wheel base. The load, while greater is distributed over more wheels of proportionate tire width. A striking ilustration of this is given by our roads. While heavy rolling stock, such as the big compound engines which are now used on our railroads, are very much heavier than the rolling stock of

DIVISION OF CHEMISTRY AND
CHEMICAL TECHNOLOGY

COMMITTEE ON CERAMIC
RESEARCH
(Joint Committee with American
Ceramic Society)

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WASHINGTON, D. C.

NATIONAL RESEARCH COUNCIL

Established in 1916 under the Congressional Charter of the
National Academy of Sciences and organized with the cooperation of the
National Scientific and Technical Societies
of the United States

Urbana, Illinois

January 31, 1921

Mr.A.V.Bleininger

The Homer Laughlin China Co.,

Newell, W.Va.

My dear Bleininger:-

I am very sorry indeed to learn that your present work is going to render it difficult for you to remain on the Research Council Committee. Your position as Chairman of that Committee is ex-officio as representative of the Society on the Chemistry Division of the Council, consequently it will not be possible for me to succeed you as chairman, since that position will be held by your successor on the Council. I sincerely trust, however, that you will at least postpone your resignation so that it will not take effect before the annual meeting of the Division, which will be in May . At the same time the President of the Ceramic Society should be advised so that a successor can be nominated by the Society at the approaching meeting. I trust, however, that it will not be necessary for you to resign from the Research Council and I assure you that you will be sadly missed by your colleagues. I can hardly believe that the Homer Laughlin Company will object to your continuing this work. As you know a number of the members of the Chemistry Division of the Council are in the employ of manufacturing companies, and these companies are not only glad to have their men serve in this way, but they even insist on paying all expenses connected with such service, feeling that it is an honor to have a member of their staff selected for such national service as the Research Council is carrying on.

I shall arrange to attend the Chicago meeting of the representatives of the various clay products associations.

Very sincerely yours,

E.W.Washburn
Secretary

years ago, the weight per inch of bearing surface has not been greatly increased. This has been met by putting extra bearing surface under the weight. For instance, the big engines now have 16 driving wheels, whereas the early engines had only four.

"It would have been as sensible fifty years ago to have prohibited the use of locomotives larger than the little 4-wheel drivers, as it would be today to limit the weight of the motor truck on any other basis than tire width, and the number of wheels under the weight, which in the case of our large locomotives gives several hundred per cent, greater hauling capacity with probably only 100 per cent. greater weight of rail. Without the development of the large locomotive and the increased size of railroad cars, freight rates would probably be double what they are now. If we set an artificial limit on motor trucks, we are handicapping what is fast becoming an important means of transportation, and adding to the cost of every article of food or clothing we use, and placing a generally greater economic burden on the country. We must build the road to carry the load."

JOHN MORONEY CHANGES BASE OF OPERATION.

AFTER being domiciled in the Great Northern Building at 20 West Jackson Blvd., Chicago, for eighteen years, John Moroney, President of the Chicago Brick Machinery Comany, has at last been obliged by the growth of his business interests to seek more commodious quarters and so has moved to 2825 West Harrison street, where he and his associates have built a roomy store-house and office building for their own exclusive use.

John J. Moroney, Chicago, Ill.

The door of the new office bears this legend—

John J. Moroney & Co.,
Chicago Brick Machinery Co.,
U. S. Rocking Grate Bar Co.,
Jackson Fire Brick Co.

It is the business of the later company that made the new quarters necessary. The J. F. B. Co., of which Mr. Moroney is president, is supplying brick in carload and job lots to the local trades requiring same. The new building which is built of brick, of course, is commodious and affords every needed facility for storing and handling a full line of fire brick and block. No face brick or building brick are handled. The location is admirable as it is in a great industrial center. Within a radius of a mile there are hundreds of tall chimney stacks built mostly of fire brick of course, so there is a large and growing demand for that essential material.

The old office for years has been the mecca of clayworkers visiting Chicago who, whether seeking information relative to the brick and tile business or on mere pleasure bent, always found that "John's" office was a convenient headquarters. They were always made welcome, "John" being a past master in the glad-hand art and walking encyclopedia of information on all matters pertaining to the clay trade. Among his intimates he is known as the "King of Ireland." Being a native born Chicagoan, and since boyhood connected with the brick machinery business, he has known all the brickmakers of that section both of the past and present generation.

The new office is conveniently located, Harrison street being one of the city's main East and West thoroughfares. A visitor runs no risk of being lost in a large city, if he will simply take a Harrison street car headed West. Getting off at 2800, look for a fine two-story brick structure, and there you are.

In addition to the other lines mentioned, John J. Moroney & Co. have recently taken the sales agency for the Tecktonius Kiln and Kiln Lugs, for the United States and Canada and are prepared to give full information in regard to plans and specifications for new brick and tile kilns or the kiln bands and lugs for the repair of old kilns. Frank B. Calmeyn, who has been associated with the firm for many years and is now treasurer of the company, takes as much pride in the new home as though it was all his own, and he is justified for in it he and his big chief realize a long cherished ambition.

NEW COMPANY TAKES OVER OLD PLANTS.

An immense merger has just been consummated whereby three large Eastern Pennsylvania clayworking plants have been consolidated, including the Castle Clay Company plant at New Castle, the Youngstown Clay Products Company at Volant, and the Carbon Brick Company at Carbon. The new concern will be known as the Liberty Clay Products Co. with headquarters at New Castle, Pa. The capacity of all of the plants will be increased 50 per cent.

The capital stock of the new company has been placed at $500,000 of which a working capital of $200,000 is available, a portion of which will be expended in increasing the capacity and scope of the three plants.

The plants at Carbon and Volant are now in operation, while the New Castle plant is being rapidly placed in shape for operation and will be ready shortly after August 1. A large force of men is already at work at the New Castle plant, reconstructing the old kilns and getting them ready for operation.

Each plant will manufacture a separate line of clay products, each plant producing the products for which the material at hand is best adapted; the Volant plant turning out fire proof and hollow brick entirely, while the Carbon plant will manufacture common brick. Face brick of different colors and finer finish than that of the Carbon plant will be made at the New Castle plant.

F. A. Kanengeiser, general manager of the Bessemer Limestone Company and director of the Metropolitan Paving Brick Company of Canton, is president of the new organization, while the plant managements will be under the direction of P. A. Kanengeiser and H. H. Bartells.

The directors are F. A. Kanengeiser, H. H. Bartells, E. E. Holloway, Le Mar Jackson, of the Carbon Brick Company, Bruce Campbell, James Morgan of Youngstown and S. DeGraff Pearson of the Pearson Brick Company of New Castle.

As long as we can keep the home spirit fires burning the danger from bolsheviki propaganda is comparatively small.

TRANSPORTATION OF THE FUTURE.

The Brick Paved Highway and the Important Part it May Play in Connecting Producer and Consumer.

By Will P. Blair, Before Canadian Clay Products Assn., Montreal, May 25, 1919.

NO SINGLE COMMUNITY town or city possesses within its own border that upon which it can depend for its own existence.

The utilization of meat and grain with fingers and teeth alone would reduce us to the very level of the lowest animal life. In the use of these staples civilization, in the interest of economy, comfort and satisfaction, is drawing upon every part of the world to furnish facility and flavor, conducive to their highest use.

The state of progess attaches a similar relationship to everything contributing to our existence and well being. Our whole existence depends entirely upon what we send out and bring in.

The prosperity of any city depends upon the economy of the exchange. The greatness of any city is measured by the volume of her tonnage. But prosperity and greatness depend alike upon the facilities by which the exchanges are accomplished. Tonnage increase does not come of itself—by its own initiative or even of necessity—arbitrary determination directed and guided by a wise vision anticipating an efficiency adequate, are the fundamentals of progress.

But little advantage can be seen between the irregular lurching of the burden on the camel's back as it has been traversing the plains of Asia for a thousand years and that of the lunging in and out of the mud through which the entire products of Canada and the United States have been and are now being borne. It is a strange fact that our transportation system embraces the very extremes of inefficiency in bearing the same product to market—the mud road and the steam railway.

No parity of economy exists, what prevails disputes common sense, spasmodic and sectional efforts have shown possibilities, but back-sliding has attended every revival of highway improvement so that when the United States for example, was suddenly confronted with an absolute necessity for the use of a highway for military requirements no one knew of the existence of a single route that was fit for the purpose and a commission had to be appointed to search for one. A northern route gave some promise, but on a closer inspection it was abandoned because the bridges were unsafe for the loads and an angling course through Ohio and Pennsylvania was decided upon, not as a feasible one but because a better one did not exist.

This deplorable situation has given birth to a new hope; it comes at a time when opportunity gives it strength. The truck and passenger car afford a counterpart that must with highway improvement mark a new epoch in transportation.

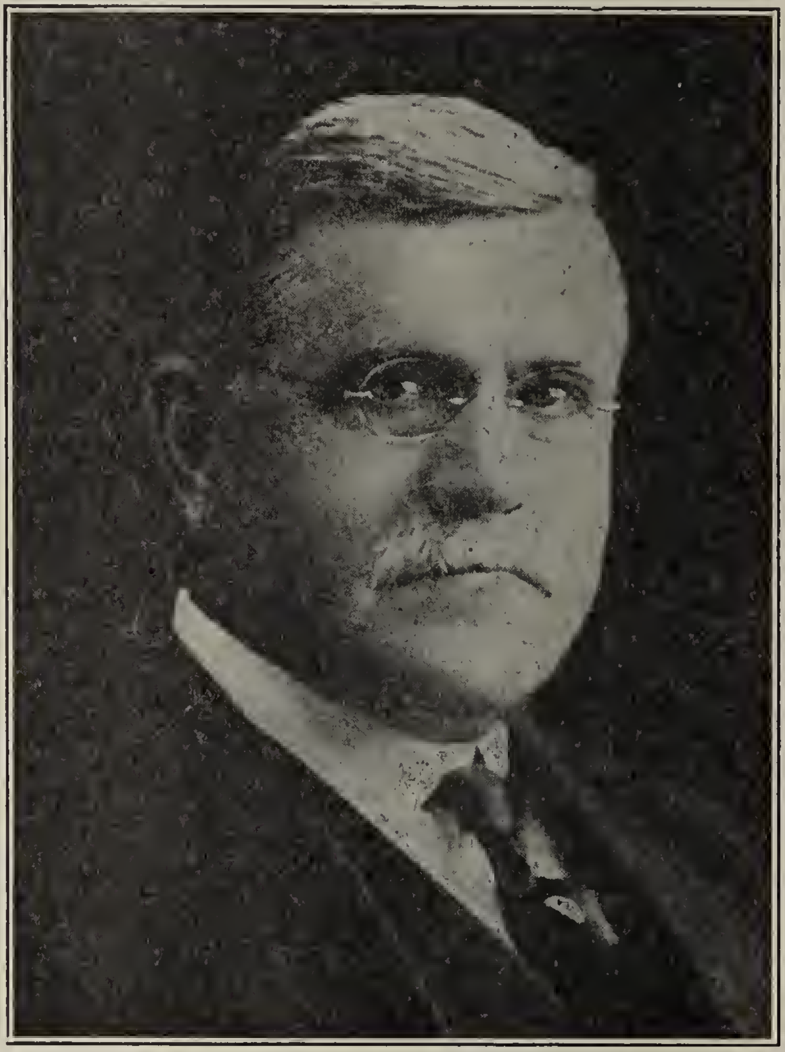
There was a time when in the earlier settlement and location of our cities, utmost security was felt, if happily that city found itself a location and name by a lake or navigable river.

Such a condition was good collateral for all the promise there was in it—if only some one had not disturbed the condition. Many cities with bright hopes but without vision, resting upon transportation facilities afforded by the Ohio, Mississippi, the Wabash, Illinois and Missouri rivers, and some even upon our northern lakes, have less population today than seventy-five years ago.

The oncoming of the steam railway sounded no alarm, much less did it visualize a course so easy of discernment, that with but one eye open there would have been seen the way, through which escape could have been made from commercial decay in death. These towns are on the market today at junk prices.

Even after the great railway development was at its height, some towns self satisfied as to their own importance and strength, refused to encourage much less bid a price for the new means of transportation, for which other towns found the price, secured the price and have grown fat upon the investment, while the town of neglected opportunity is but existing today in a paralyzed state.

I am aware that this is but a brief look back of what you already know to be true. But if the old, old stories of religion and love were not repeated often our morals would collapse and courts would soon be full of divorce cases. At least what I have said is perfectly clear to you because you have seen it with your own eyes.



Will P. Blair, Cleveland, Ohio.

But I am not so certain that the entire public even sees the condition with which we are completely enshrouded. It has been slipping in, upon, over and about us so quietly and with such stealth and so close that I fear we are blinded. We at least must realize that a stupor is upon us and we must throw it off. We ought therefore to take counsel with one another, if perchance conditions of transportation can be bettered.

It is not a condition due to war or of any sudden emergency, but calamities do serve to arouse.

It is but within the past few years that 25 per cent. of our total population which lived in the country now lives in the cities; that 25 per cent. eats just as much now as when they lived in the country. They consume, as we do, 33 per cent more of the household, domestic and personal conveniences than a few years ago. A walk to the spring, the old wash pan, three legged skillet, the hanging kettle, have scarcely a meaning today much less a use. The water must come hot and cold, the kitchen utensils, household conveniences and ornaments and machinery have multiplied into the thousands. The men who make these things no longer raise the things they eat or that which they use for themselves, but all this increased tonnage must now be brought to him and to us, from where it is made or produced. Nor does this take into account the vast industrial exchanges made necessary in industrial manufacturing processes or the natural increase due to increased population.

Due entirely to this transformation and re-arangement of our domestic relationship and industrial development our average tonnage production for transportation has increased 33 per cent., and this must be transported, step by step, from where it is produced to where it it consumed.

In the meantime our railroads have increased but ten per cent. in mileage with no apparent increase in efficiency. Standing at the threshold of our future interest, what is to be our activity? Shall antiquated and wasteful practice continue?

Brick Paved Highway Best for Heavy Traffic.

Or shall we take advantage of the clearly seen economy which affects every being in everything pertaining to our well being. Extended argument is unnecessary to prove to you how great a part clay products is to play in the practical operation of this new transportation problem. The drainage requires the use of tile and sewer pipe. No road of any type of surface improvement whatever, can anywhere near approach its value unless properly drained and this means a liberal use of drain tile and sewer pipe for which no substitute can be found.

The use of vitrified brick is undisputably the most economical wearing surface for all roads of excessive traffic. Long experience with vitrified brick as a wearing surface has demonstrated not only its superior qualities, of economy, and satisfaction in use, but its adaptability to local conditions, variable degrees of traffic, as well as different types of construction, permitting the use of local gravel, stone and sands, for foundation purposes, places vitrified brick in a class of its own, above and beyond all other road materials.

No hard and fast rule for brick road construction applies except the universal rule which applies to everything—that whatever and however the thing which is to be done, care and skill should be the watchword as against carelessness and neglect. Details and methods are one thing but if not complied with in practice they are worthless. Plain and simple rules of manner and methods of construction are easily obtainable from manufacturers of brick for the construction of brick roads. These rules are easily understood and easily followed.

A proper discrimination as to types of greater or less cost is naturally the work of the engineer who must study the local conditions as well as the expected traffic. The difference in cost of a brick road, be it greater or less than that of a road of any other kind, is the difference in the cost of the depth of the three or four inches ofthe wearing surface of the brick and that of the three or four inches of the wearing surface made of any other material.

In comparing the cost of other pavements with that of brick, you measure the depth of the wearing surface of the one with the depth of the wearing surface of the other. It can therefore be seen that the first cost of brick roads is in no sense excessive. This in face of the undisputable fact that there are more miles of brick roads and streets in the United States upon which no repairs have become necessary, than of all other pavements combined, makes their relative worth of deepest concern to the tax payers of all North America.

Their economy to the user is of no less importance. A properly constructed brick road bears its traction load with equal assurance night or day, wet or dry, in winter and summer, with that of the steam railway.

Upon the great brick paved motor speedway at Indianapolis, Indiana, a speed of 89 miles an hour for a continuous run of 500 miles has been reached—about the speed of the aeroplane.

When such papers as "Successful Farming" reports that over the roads of Iowa, poor as they are, there has been trucked to the packing houses of that state, 25,000 hogs, 23,408 cattle, 61,402 sheep and that other trucking in that state had reached a maximum of 344 trainloads; when Engineering News Record publishes comparative costs of steam and truck haulage showing a great saving in cost in favor of the truck, and in view of our own knowledge of the thousands of wasted tons of food every year, from lack of transportation, due to bad roads, it is high time that Canada and the United States be alert to the opportunity which the building of brick roads offers, for the well being of the entire population.

Short stretches of roads improved with brick have given proof of their limitless value.

The transportation equipment is practically held in readiness. In the state of Ohio alone there is now individually owned a sufficient number of trucks and automobiles to ration and transport into Canada in sixty hours' time, every man, woman and child within the state.

All the phases of this question can not be treated with on a single occasion. That it has now become the biggest domestic and economic question both to Canada and the United States no one doubts. All that is wanted is the insipiration and courage to deal with, wisely, effectively and promptly, in the interest of all the people.

One of the things we are getting an impressive lesson on these days is that labor cost is the big factor in the final cost of almost every manufactured article of commerce.

NEW JERSEY CLAYWORKERS ENJOY A DAY AT TRENTON.

THE MID-YEAR MEETING of the New Jersey clay-workers, being a joint meeting of the state association and the Eastern section of the American Ceramic Society, was a very pleasant affair. There were nearly a hundred enthusiasts in attendance and the papers and discussions were of much interest and will help solve some of the many problems that now confront the craft.

Mr. Chas. Howell Cook presided and proved a very efficient executive. The meetings were held June 24 at the Trenton Country Club, an ideal spot for such a gathering. The first session was called at 11 a. m. and after attending to the routine business or registration and enrollment, Chairman Cook addressed the convention, calling attention to the importance of the industry and the leading place it occupies in New Jersey. He stated that the clay deposits in the state are the most valuable on the Atlantic seaboard and called attention to the fact that the state has the most extensive and valuable deposit of plastic fire clay in the nation.

The capital invested in the industry in New Jersey is approximately $40,000,000, while the annual output is nearly $20,000,000, and nearly 15,000 employes are engaged in the industry in New Jersey. Mr. Cook stated also that there is a total of 247 ceramic plants in New Jersey, and that of this number there are 87 potteries, 25 fire and brick and terra cotta works, 78 building brick and hollow ware plants and 57 clay miners. He stated that the industry stands fourth with a total of $477,000,000 in products for a year. He also made a comparison of this product with that of other industries.

Speaking of manufacturing conditions and prices in the United States and foreign countries, Chairman Cook, pointing to foreign competition, made a plea for the protection of the home manufacturer and asked that the members observe and boost the motto

"Keep the Home Kilns Burning."

Mr. Cook started something of real importance when he suggested that a state museum of clay products be established and exhibited some very fine samples of china ware and terra cotta including some pieces from the dinner set recently made by the Lennox Pottery for the White House which for beauty and richness of decoration probably has never been surpassed by any ware of foreign manufacture. As a start for an exhibit of New Jersey pottery a number of fine samples of ware were shown.

One piece, the first decorated ware made in New Jersey, was a sample of ware made by McCullough at Trenton in 1801. Another sample of ware similar to that made by the Chinese, attracted much attention. It is believed that the members of the organization, which should include all the pottery manufacturers of the state, will liberally contribute to the proposed display which it is hoped will find a permanent home in the State House or some appropriate state building.

The first formal paper was presented by Prof. Geo. H. Brown of the Department of Ceramics of Rutgers College and Secretary of the Association. He discussed at length the different methods in full in a subsequent issue of the Clay-Worker.

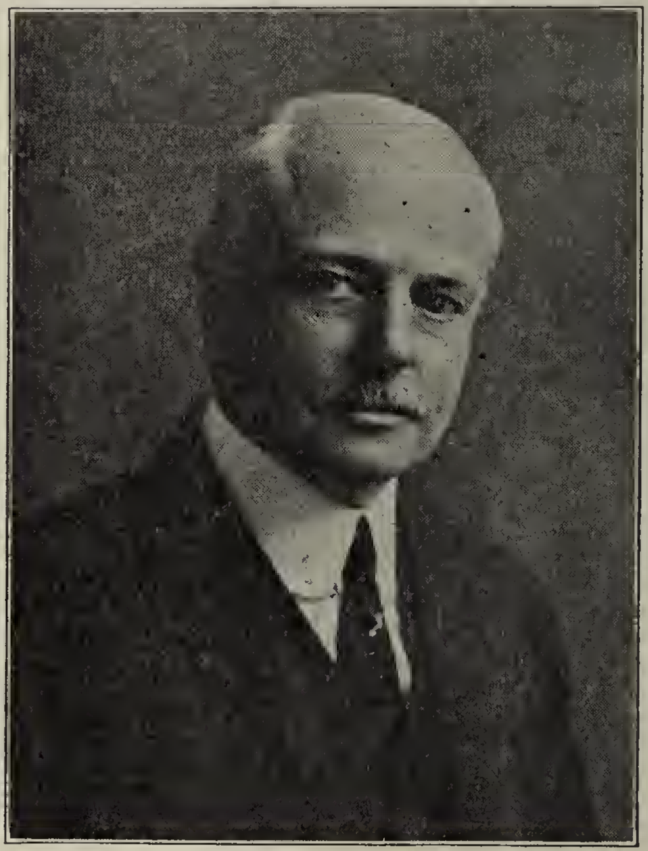
Mr. E. C. Hill of the Conkling-Armstrong Terra Cotta Co., Philadelphia, presented an interesting technical paper on: "Some Data on the Development of Terra Cotta Glazes."

President Cook insisted on a thorough discussion of all papers and subjects under consideration and by persistent and forceful tactics obtained expressions from those in attendance who where peculiarly qualified to take part in the discussion.

At 12:30 the meeting adjourned for luncheon which was served on the airy porch of the club and proved most enjoyable. Necessarily a dry affair, so far as liquid refreshments were concerned, it was exceedingly conversational, the members engaging in social chat between courses. After cigars had been served, Chairman Cook stated that there would be no formal speeches but he desired to hear from one of the local celebrities and from Mr. Randall, secretary of the National Association. The latter after thanking the Chairman for his kindly consideration, said he was sure nothing in a serious vein was desired and quoted from a humorous booklet entitled "How To Be Happy Though Dry," an appropriate dry toast—

"Here's to the cup
That cheered us up—.
Here's to the old oak bar—
Here's to the days
That WERE the days
Compared to the days that ARE!"

Mr. Randall spoke briefly, congratulating the association on its progress and the fine attendance and felicitating President Cook on the happy manner in which he was directing the talk fest, and closed with the following verses from the same booklet, as appropriate for a "Dry" dinner:



President Charles Howell Cook, Trenton, N. J.

"WHERE DO WE GO FROM HERE?"

Hand me the menu, waiter,
What shall we have today?
A sniff of the old Duff Gordon?
A dipper of Dubonnet?
Gone, but never forgotten,
The tipples of yester-year—
Never again for the thirsty men—
But, where do we go from here?

—Chorus—
Where do we go from here, boys.
Where do we go from here.
They've tied a can to the whisky fan,
And on to the cups that cheer.
It's nix on the old rye highball,
With a good song ringing clear;
A h-ll of a note with a thirsty throat,

BUT—where do we go from here?

Medford and Mumm and Chianti,
Bourbon and Scotch and blend,
They've bottled the laughing waters,
From here to the rainbow's end;
Burgundy, aye, and Bacardi—
Gone from the Great White Way,
They've called the hour on the whisky sour—
Waiter, the world is gray.

Never a ray of sunshine—
The long-haired law lies straight;
It starts in Aroostook County
And it's nailed to the Golden Gate;
Michigan, Maine and Missouri,
Kansas and old Kentuck—
You can hit the pike in the way you like—
Waiter, we're out of luck.

The egg and the milk have taken
The place of the rock and rye,
And they're shooting a mess of sundaes
Where the good old goose hung high;
They're making a movie palace
Where the old performers sat,
And they've clamped the lid where the old
Gang hid at the SIGN OF THE PURPLE HAT.

Secretary George H. Brown, New Brunswick, N. J.

It's oh, for the cheery tinkle
Of the ice and the mixing-spoon,
And the subtle hint of the fragrant mint
That smells like a night in June;
It's oh, for a day departed
In the place of the day that is,
When we sank our nose and forgot our woes
In the depth of a sloe gin fizz!

Here is your menu, waiter—
There isn't a drink in town—
There's naught to do for the quiet stew
Who sits with the heart bowed down;
Never a hope remaining, never a drop to cheer,
Only a sigh for a day gone by, and—
Where do we go from here?

—Chorus—
Where do we go from here, boys?
Where do we go from here?
For I've got a hunch that the whisky punch
Will never again appear,
Farewell to the dry martini—
Farewell to the cups that cheer—
They've batted the rum to Kingdom Come,
And—WHERE DO WE GO FROM HERE?

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The opening number of the afternoon session was an instructive paper by Dr. A. V. Bleininger of the Bureau of Standards, Pittsbugh, entitled "A Plea for the Use of Precise Data in Ceramics." Dr. Bleininger spoke from notes but it is presumed that his paper will be committed to type and given out for publication in the near future. The same is true of an able paper on "Ceramic Kiln Construction" prepared by P. A. Boeck of the Celite Products Co., New York City. The latter was illustrated with a number of charts and diagrams and demonstrated clearly that the proper insulation of kilns is a source of real economy. A technical paper on "Some Aspect of Ball Mill Grinding" by Leslie Brown of the Lenox Pottery, proved of particular interest to the ceramists present.

The election of officers resulted as follows: President, Charles Howell Cook, Trenton, N. J.; vice-president, Abel Hansen, Perth Amboy, N. J.; secretary, George H. Brown, New Brunswick, N. J.

The members of the executive committee were re-elected.

Chairman Cook congratulated the membership on the fine attendance and thanked the visitors for their presence, expressed the hope that they would come again and predicted that the Association would prove of great material help to everyone engaged in the clayworking industries.

THOSE IN ATTENDANCE.

G. H. Brown, Dept. of Ceramics, Rutgers Coll., New Brunswick, N. J.
E. C. Stover, Trenton Potteries Co., Trenton, N. J.
F. S. Thompson, Rutgers College, New Brunswick, N. J.
H. K. Walton, Thwing Instrument Co., New York City.
E. C. Hill, Conkling-Armstrong Terra Cotta Co., Philadelphia, Pa.
J. B. Maddock, Jr., John Maddock Sons Co., Trenton, N. J.
Otto W. Will, Roessler & Hasslacher Chem. Co., Perth Amboy, N. J.
Abel Hansen, Ford's Porcelain Works, Perth Amboy, N. J.
R. H. Minton, General Ceramics Co., Metuchen, N. J.
L. E. Hersh, Palmerton, Pa.
Andrew Faltz, Lambertville Pottery, Lambertville, N. J.
John H. Leisen, Clay Miner, Woodbridge, N. J.
R. L. Clare, Federal Terra Cotta Co., Woodbridge, N. J.
Geo. E. Hoffman, Monument Pottery Co., Trenton, N. J.
F. H. Burroughs, Star Porcelain Co., Trenton, N. J.
Joseph Boughey, Hanovia Chem. and Mfg. Co., Newark, N. J.
Richard Garmo, Star Porcelain Co., Trenton, N. J.
R. L. Warburton, Celite Products Co., New York, N. Y.
D. F. Albery, Federal Terra Cotta Co., Woodbridge, N. J.
August Staudt, Perth Amboy Tile Works, Perth Amboy, N. J.
Chr. Mathiasen, South Amboy Terra Cotta Co., South Amboy, N. J.
M. Brandt, Trenton, N. J.
Louis Pohle, Monument Pottery Co., Trenton, N. J.
C. W. Crane, C. W. Crane & Co., 17 Battery Pl., New York, N. Y.
J. M. Kreger, Monument Pottery Co., Trenton, N. J.
F. B. Allen, Federal Terra Cotta Co., Woodbridge, N. J.
J. M. Seasholtz, Porcelain Enameling Co., Reading, Pa.
Karl Turk, Pocelain Enameling and Mfg. Co., Baltimore, Md.
A. V. Bleininger, Bureau of Standards, Pittsburgh, Pa.
H. W. Moore, Atlantic Terra Cotta Co., Perth Amboy, N. J.
G. A. Williams, Atlantic Terra Cotta Co., Perth Amboy, N. J.
W. J. J. Bowman, Trenton Fire Clay and Porc. Co., Trenton, N. J.
H. E. Maddock, John Maddock Sons Co., Trenton, N. J.
R. W. Greene, Ky. Construction and Improvement Co., Mayfield, Ky.
C. A. Hall, Pa. Salt Mfg. Co., Philadelphia, Pa.
A. E. Stangen, Philadelphia, Pa.
Cyrus Borgner, Cyrus Borgner Co., Philadelphia, Pa.
F. F. Frederick, The School of Industrial Arts, Trenton, N. J.
J. P. Scheen, Philadelphia, Pa.
H. Schmidt, Roessler & Hasslacher Chem. Co., New York, N. Y.
W. Malsch, Roessler & Hasslacher Chem. Co., New York, N. Y.
Geo. Simcoe, Electrical Porcelain Co., Trenton, N. J.
H. L. Yearsley, Philadelphia, Pa.
C. C. Cooper, Philadelphia, Pa.
W. H. Fulper, Fulper Pottery Co., Flemington, N. J.
J. M. Stangl, Fulper Pottery Co., Flemington, N. J.
W. A. Phillips, Trenton, N. J.
C. T. H. Phillips, Sneyd Enameled Brick Co., Trenton, N. J.
Chas. A. Bloomfield, Metuchen, N. J.

Fred A. Whitaker, General Ceramics Co., Keasbey, N. J.
Leslie Brown, Lenox, Inc., Trenton, N. J.
W. E. Mueller, Mueller Mosaic Co., Trenton, N. J.
J. F. Lenox, Trenton, N. J.
P. G. Duryea, Cook Pottery Co., Trenton, N. J.
Chas. H. Cook, Pres. Cook Pottery Co., Trenton, N. J.
L. L. Byers, Abrasive Co., Philadelphia, Pa.
H. A. Plusch, Abrasive Co., Philadelphia, Pa.
R. K. Bowman, Trenton Fire Clay & Porcelain Co., Trenton, N. J.
Mark Solon, Mercer Pottery, Trenton, N. J.
James Darling, Trenton, N. J.
A. C. Grainger, Trenton, N. J.
W. L. Thompson, Economy Pottery Co., Trenton, N. J.
A. E. Smith, Trenton, N. J.
J. W. Mycock, Trenton, N. J.
W. M. Shakespear, The Edison Co., South Orange, N. J.
C. J. Rukenbrod, Trenton, N. J.
J. A. Schmerhorn, Trenton Porcelain Co., Trenton, N. J.
T. A. Randall, "The Clay-Worker," Indianapolis, Indiana.
G. G. Dyer, Sec., Sanitary Potters' Association, Trenton, N. J.
J. L. Jensen, Empire China Works, Brooklyn, N. Y.
William Chell, Empire China Works, Brooklyn, N. Y.
C. W. Kimble, Trenton, N. J.
J. G. Bragg, Dept. of Conservation & Development, Trenton, N. J.
F. D. Holmes, Thomas Maddock's Sons Co., Trenton, N. J.
H. P. Humphrey, Washington Porcelain Co., Washington, N. J.
W. A. Giebert, Seneca Clay Pipe and Novelty Wks., Brooklyn, N. Y.
S. E. Meagher, Robertson Art Tile Co., Trenton, N. J.
Everett Townsend, Robertson Art Tile Co., Trenton, N. J.
T. H. Fetter, Consolidated Clay Co., Trenton, N. J.
L. R. W. Allison, "Brick and Clay Record," Newark, N. J.
James Hamilton, Trenton Potteries Co., Trenton, N. J.
R. P. Giebert, Seneca Clay Pipe and Novelty Wks., Brooklyn, N. Y.
J. McAllister, Trenton Fire Clay & Porcelain Co, Trenton, N. J.
H. McAllister, Trenton Fire Clay & Porcelain Co., Trenton, N. J.
C. Webster, Trenton, N. J.
H. Lyons, Keystone Pottery Co., Trenton, N. J.

ANNUAL MEETING AMERICAN SOCIETY FOR TESTING MATERIALS HELD AT ATLANTIC CITY, JUNE 24 TO 27, 1919.

CERAMISTS, SCIENTISTS and other professional men gathered at the Traymore Hotel, Atlantic City, for the twenty-second annual conference of the American Society for Testing Materials and enjoyed one of the most successful meetings in the history of the organization. The numerical roster showed an attendance of nearly 600 which exceeds that of any meeting for a number of years.

The committees having in charge the ceramic and various branches of the brick industry, held preliminary meetings on Thursday and reported to the society on Friday. The branches covering paving brick, fire brick and drain tile reported progress and Committee C-3 on building brick made a final report which we give in full. Edward Orton, Jr., chairman of the committee was unable to be present owing to the serious illness of Mrs. Orton. Dr. A. V. Bleininger, the secretary of the committee, acted as chairman as will be seen by the following report.

It was agreed to appoint a new committee for the consideration of standards and specifications for sewer brick. It is anticipated that much important work may be accomplished in this direction and the make-up of the committee and the preliminary work outlined will be announced in the very near future.

There were not as many building and paving brick manufacturers in attendance as usual owing to the fact that the work undertaken has been pretty well determined for the present, and the added fact that most of the leaders in the industry are very busy readjusting and operating their plants on a piece basis.

REPORT OF COMMITTEEE C-3 ON BRICK.

COMMITTEE C-3 has held two meetings during the year and submitted a report consisting of two parts:

First, a recommendation to the Society for the adoption of Tentative Specifications for Building Brick, unanimously approved at the meeting held in Pittsburgh, Pa., March 7, 1919, and submitted to a vote by letter ballot, with the following results: affirmative, 11; negative, none; not voting, 3; total 14.

Second, a report by Col. Edward Orton, Jr., entitled, "A Study of the Proposed A. S. T. M. Tentative Specifications for Building Brick and a Correlation of Their Requirements with Sodium-Sulphate Treatment and Actual Freezing." This contribution was accepted as constituting part of the committee report, at a meeting June 26, 1918, at Atlantic City, when it was voted also to submit it for publication by the Society. Owing to the voluminous character of the paper it appears in separate form as an Appendix to the report.

The proposed Tentative Specifications for Building Brick are the result of work which has extended over a number of years. In 1913 it was decided to collet data on the mechanical strength of building brick for the purpose of arriving at a reasonable and fair classification. The results of many tests were correlated but the need for additional information became apparent. Arrangements were completed in 1914 for co-operation with a number of University engineering laboratories and bricks from many states were tested, employing uniform methods of procedure. These results were published in the 1915 report of the committtee.* At a meeting held June 24, 1915, the tentative classification substantially as given in the present report was approved after careful consideration of the data. The ruling covering the standing of a set of bricks with reference to the requirement in which it is lowest was adopted on June 28, 1916. At this time the sodium-sulphate test was proposed as a criterion of the durability and weather resistance of building bricks. Owing to

Albert V. Bleininger, Pittsburgh, Pa.

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*Proceedings, Am. Soc. Test. Mats., Vol. XV, Part I, p. 150 (1915).

the favorable evidence advanced Col. Edward Orton offered to conduct an extensive investigation correlating the mechanical properties of typical building brick from various parts of the country with their resistance to ice and sodium-sulphate freezing. This elaborate study was undertaken by Col. Orton, largely financed by himself, and the results are embodied in the report of the committee for this year. The usefulness of the sodium-sulphate tests for differentiating clay bricks as to their probable resistance to weathering agencies has been shown, but owing to the vigorous action of the salt upon bricks made from other materials, due perhaps to chemical reaction, the test has not yet been included in the proposed tentative specifications.

This report has been submitted to the letter ballot of the committee, which consists of 14 members, of whom 11 have voted affirmatively, none negatively, and 3 have refrained from voting.

Respectfully submitted on behalf of the committee,

A. V. BLEININGER,
Acting Chairman.

AMERICAN SOCIETY FOR TESTING MATERIALS.
PHILADELPHIA, PA., U. S. A.
Affiliated with the
INTERNATIONAL ASSOCIATION FOR TESTING MATERIALS.

TENTATIVE SPECIFICATIONS FOR BUILDING BRICKS.

Serial Designation: C——19 T.

These specifications are issued under the fixed designation C—; the final number indicates the year of original issue, or in the case of revision the year of the last revision.

Issued, 1919.

I. STANDARD SIZE.

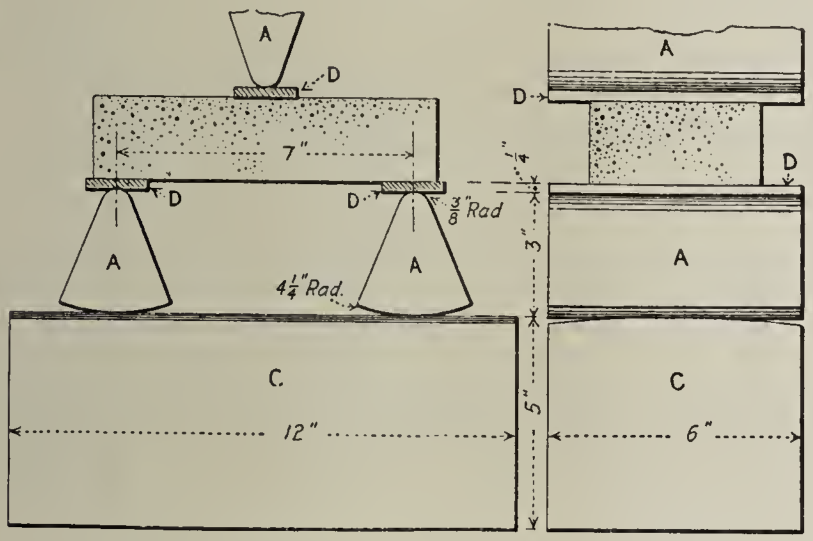
Standard Size.

1. The standard size of building brick shall be 2¼ by 3⅞ by 8 in.

II. SAMPLING.

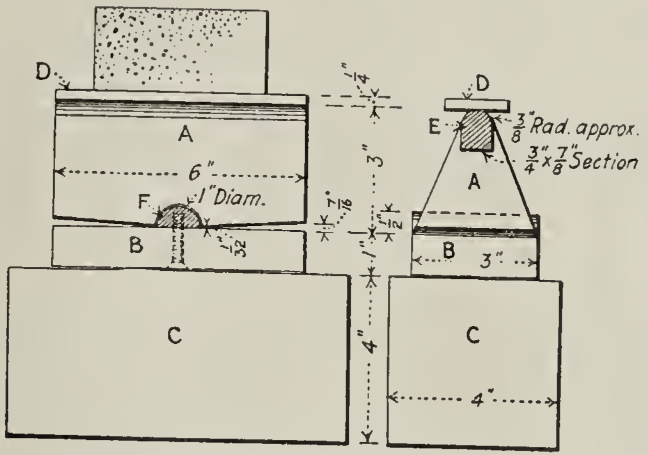
Sampling.

2. For the purpose of tests, bricks shall be selected by an experienced person so as to represent the commercial product. All bricks shall be carefully examined and their condition noted before being subjected to any kind of test. For the purpose of the tests ten bricks will be required; they shall be thoroughly dried to constant weight in a suitable oven at a temperature of from 225° F. (107° C.) to 250° F. (121° C.).



A - Cast-Iron Wedges, C = Soft Wood Block; D = Cold-Rolled Steel Plates.

FIG. 1.



A, B = Cast-Iron Wedges; C = Soft Wood Block, D, E, F = Cold-Rolled Steel.

FIG. 2.

III. PHYSICAL TESTS.

Absorption.

3. (a) At least five dry bricks shall be weighed and completely submerged in water at a temperature between 60 and 80° F., the water heated to boiling within one hour, boiled continuously for five hours and then allowed to cool in the water to a temperature between 60 and 80° F. They shall then be removed, the surface water wiped off with a damp cloth and the brick quickly weighed.

(b) The percentage of absorption shall be computed on the dry weight, according to the relation:

$$\text{Percentage of Absorption} = \frac{100\ (B - A)}{A},$$

where A = weight of dry brick and B = weight of saturated brick.

Compression Tests.

4. (a) Compression tests shall be made on at least five half bricks, previously dried, each taken from a different brick. The half brick shall be prepared either by sawing or cutting upon a yielding bed with a sharp mason's chisel, which shall be the full width of the brick. The specimens shall be tested on edge. To secure a uniform bearing in the testing machine the edge surfaces shall be bedded in a thin coat of plaster of Paris spread upon plate glass previously coated with a film of oil. Before applying the plaster of Paris, the bearing surface of the brick shall receive a coating of shellac. The brick shall be pressed firmly upon the surface, making the layer as thin as possible, and remain undisturbed until set. The depression of recessed or paneled bricks shall be filled with neat Portland-cement mortar, which shall stand at least 24 hours before testing.

(b) The machine used for the compression tests shall be equipped with a spherical bearing block kept thoroughly lubricated to insure accurate adjustment, which should be made by hand under a small initial load. During the test the beam of the testing machine shall be kept constantly in a floating position.

(c) The breaking load shall be divided by the area in compression and the result reported in pounds per square inch.

Transverse Tests.

5. (a) At least five bricks, previously dried, shall be tested, laid flat-wise, with a span of 7 in., and with load applied at midspan. The knife edges shall be slightly curved in the direction of their length. Steel bearing plates, about ¼ in. thick by 1½ in. wide, may be placed between the knife

edges and the brick. The use of a wooden base block, slightly rounded transversely across its top, upon which to rest the lower knife edges (see Fig. 1), or the form of lower knife edge shown in Fig. 2, is recommended. If the knife edges shown in Fig. 2 are used, they should rest upon smooth plane blocks of wood at least 2 in. thick.

(b) The modulus of rupture shall be computed in pounds per square inch by the following formula:

$$R = \frac{3\,Wl}{2\,bd^2},$$

in which l = the distance between supports in inches, b = the breadth and d = depth of the brick in inches, and W = the load in pounds at which the brick failed.

Record of Test Results.

6. In recording the results of the test the type of brick shall be defined, whether stiff mud, soft mud, dry pressed, repressed, sand lime or other types. It is recommended that the data obtained be recorded as indicated on the accompanying "Laboratory Record."

IV. CLASSIFICATION OF BRICKS.

Classification of Bricks.

7. (a) According to the results of the physical tests, the bricks shall be classified as vitrified, hard, medium and soft bricks on the basis of the following requirements:

Name of Grade	Absorption Limits, per cent.		Compressive Strength (on edge) lb. per sq. in.		Modulus of Rupture lb. per sq. in.	
	Mean of 5 Tests	Individual Maximum	Mean of 5 Tests	Individual Minimum	Mean of 5 Tests	Individual Minimum
Vitrified Brick	5 or less	6.0	5000 or over	4000	1200 or over	800
Hard Brick...	5 to 12	15.0	3500 or over	2500	600 or over	400
Medium Brick.	12 to 20	24.0	2000 or over	1500	450 or over	300
Soft Brick....	20 or over	No limit	1000 or over	800	300 or over	200

(b) The standing of any set of bricks shall be determined by that one of the three requirements in which it is lowest.

BRICK MANUFACTURING ON LARGE SCALE IN MEXICO.

As a result of the revival of building activities in Mexico, the Monterey Brick Manufacturing Co. has resumed operations on a large scale. The products of this plant are shipped to various parts of Mexico, and in pre-revolutionary times it did a large business in the sale of bricks in Cuba and the United States. It furnished more than 4,000,000 brick for the construction of the sewer system at San Antonio a good many years ago. The industry was promoted by Col. J. A. Robertson, pioneer American investor in Mexico enterprises, who came to Monterey from St. Louis, Mo., about thirty-five years ago. He is given credit with having had more to do with bringing American capital to Mexico than any other one man. He promoted the construction of the Monterey & Mexican Gulf Railroad, now a part of the National Railways of Mexico, running from Monterey to Tampico; he induced the American Smelting & Refining Co., the Guggenheims and other large smelting and mining interests to make enormous investments in Mexico. He built the first pressed-brick plant to be constructed in Mexico. It was due to him that an era of brick and concrete street paving was inaugurated in the larger cities of that country. He brought about the use of brick in the erection of business buildings and residences of the more modern types in Monterey, City of Mexico and the other principal cities of Mexico.

There should be more development and extension in the manufacture and use of clay products during the next ten years than we have ever known before in a similar period.

[redacted]

OBITUARY.

PIONEER CLAYWORKER OF ILLINOIS ANSWERS FINAL SUMMONS.

FAWCETT PLUMB, of Streator, Ill., one of the best known clayworkers of central Illinois, died at his home in that city June 25, following an illness of nine days. He was born in Ohio in 1834, but in 1868 moved to Streator, where he has since lived, a prominent figure in every phase of the city's life. Shortly after settling in Streator, he organized the Streator Brick Company, and was active in the management of same, being president at the time of his death. Not long since, a friend commenting on his age and his activity in business affairs, asked him how he managed to keep going. Mr. Plumb's reply was "I always plan my work twenty years ahead. I have made my plans for the future, and I try to keep up all my interests." He was interested in many of the manufacturing and commercial institutions of the town, but most of his attention was given to the brickmaking industry. He was the inventor of the Plumb steam tile ditcher, which was one of the first power ditchers put on the market.

In addition to all of his business interests, he found time for politics and served a term of four years in the Illinois State Senate, filling the office of president pro tem of the Senate for a period.

A man of strong convictions, a keen sense of honor, of indomitable energy and ambition, Mr. Plumb's influence on the civic and social life of Streator will be felt for many generations.

One son, E. F. Plumb, was associated with his father in many of his enterprises, and will carry on much of the work started by Mr. Plumb, senior.

In commenting on his death, a local paper pays him the following tribute:

"Outwardly a man of bricks, of real estate, of business; inwardly a dreamer, a mystic, an ardent student of the occult. In affairs shrewd, practical, money making; in his heart generous, lavish of time, money and influence to every fine cause that reaches him with its appeal. Unostentatiously liberal, retiringly bountiful, self-effacing, public-spirited—such was Fawcett Plumb as he appeared to one who had known him for thirty years. Were fortune to bring him millions, no one would spend them more liberally or more for the good of Streator."

Noted Fire Brick Man Dead.

James R. Valentine, one of the oldest manufacturers of fire brick in the country, died June 24 at his home at Woodbridge, N. J., where are located his furnaces and factories. Mr. Valentine was a member of M. D. Valentine Brother Company, and had been in the business for fifty-four years. He was born in New York City, seventy-four years ago, and was a members of an old New York family. He went to Woodbridge early in life. A son and a daughter survive.

Death of New England Brick Manufacturer.

Edward B. Fish, a well known New England brick manufacturer died at his home in Otter River, Mass., June 23, after an illness of more than a year's duration. Mr. Fish first engaged in the brick business with Mr. W. A. Spiers, under the firm name of Spiers-Fish Brick Co., and had charge of the plant at Rochester, N. H., while Mr. Spiers looked after the sales end of the business, with headquarters in Boston. About ten years ago he moved to Otter River, where he took over the brickyards of Charles Leathe, and operated same until last year, when work was suspended owing to war-time restrictions. Work was resumed this spring and Mr. Fish was looking forward to a prosperous season. He served his country in the Spanish-American war. Mr. Fish was 49 years old and leaves a widow.

COMMON BRICK MANUFACTURERS ASSOCIATION GETTING UNDER WAY.

Directors Hold Regular Quarterly Meeting and Outline Important Work for the New Secretary-Manager, Ralph P. Stoddard.

A MEETING of the big guns, the captains of the common brick industry, was held at Chicago, Monday, July 7. Secretary-manager Ralph Stoddard made his initial bow to his superior officers and outlined a plan of procedure which was approved by all present; namely, William Schlake, Chicago; Charles H. Bryan, Detroit; Ernest Barkwill, Cleveland; Tom W. Green, Sioux City; Fritz Salmen, Slidell, La.; John P. Cahoon, Salt Lake City; Charles Frances, Muskogee, Okla.; W. N. Carey, Albany, N. Y.; Max P. Allmond, Corsicana, Texas, and B. W. Balloue, Buffville, Kas.

Secretary Stoddard's plan embraced a copyrighted trademark to be moulded or stamped upon every brick manufactured by a member of the Association. It recommended full page advertisements in a number of national journals such as the Ladies' Home Journal, Saturday Evening Post, the American Magazine and others, with special copy in the trade magazines reaching the architect and contractor.

It included also the publication of a series of books giving plans and details of various types of brick building and a brick manual for the instruction and use of the small contractor.

The directors, after a thorough discussion of this plan, approved it unanimously and authorized the publication immediately of the prospectus in sufficient quantity to send a copy to every brick manufacturer in the United States.

The directors discussed the matter of the next annual convention and left to the executive committee the selection of the time and place.

There was other minor business, but nothing of sufficient importance to make a note of here.

The Association is making its first order of business the presentation of its national advertising program to the brickmakers in an effort to secure sufficient funds to carry out this program. It is the hope of the directors that the copy will be appearing in national journals and books ready for circulation to follow up inquiries in time to have its effect in the fall building campaign.

The directors authorized the publication of a "house organ" by the Association. The first issue of this publication will appear during July.

COMMON BRICK PRODUCTION.

Question—Can you inform me when and what was the largest production of common brick in this country; that is, what year showed the greatest production or value of output, and the quantity produced in that year? Also how this compares with the present rate of production? C. B.

Answer—The greatest total value of common brick production, according to the statistics of the U. S. Geological Survey, was in 1905, the total production for that year being 9,817,355,000, valued at $61,394,383, an average of $6.25 per thousand. The greatest quantity, however, was in the following year, 1906, which showed a total production of 10,027,039,000 brick, valued at $61,300,696, or $6.11 per thousand. The production in 1916, about the last normal year, was 7,394,202,000 brick, valued at $49,357,411, or $6.68 per thousand.

TRANSPORTATION.

SINCE our product is a heavy one, transportation becomes an important item in its distribution, and we have a correspondingly large interest in the subject of transportation facilities. There are three branches of transportation in more or less general use—railroads, waterways, and local deliveries by team or motor truck.

We all know in a general way what has happened to our railroads during the past year, and now what we should be very much concerned about is what may happen during the next few years. There are some advocates of permanent government operation and ownership, and there is before the country Mr. McAdoo's proposition to extend government control for five years so as to give it a tryout. What this has called forth from almost every gathering of business men of the country where the subject has been brought up, is resolutions asking Congress to return promptly the railroads to private ownership with modified regulations to make feasible fuller co-ordination of railway effort. And it would seem that this is a matter upon which this gathering should express itself in clear and unmistakable terms to Congress.

River improvement, or rather inland waterway improvement, is a matter that The Clay-Worker has persistently advocated for a number of years.

And now comes the motor truck extending the scope of local delivery and promising to play so important a part in the distribution of our product in the future that we may well give special study to it, and special effort to the pushing of the good roads which are essential to distribution by motor truck.

ENGLAND IN NEED OF 10,000,000,000 BRICKS.

THE United States Consul at London, in advices to the Department of Commerce, says that although there is an urgent need for at least 300,000 new houses in Great Britain, no start has been made in building them. Plans have been invited by the Reconstruction Ministry from local authorities in whose hands the business of erecting the required dwellings has been placed, and a large number have been submitted. Such local authorities have been granted power to levy a limited rate in their boroughs or districts to meet part of the expense, the remainder being found by the State. The private builder, however, without aid, finds it is impossible under present conditions to build houses of a class that formerly rented for £40 (say $200) per annum that could now profitably be let at less than £90 (say $450).

It is estimated that no fewer than 10,000,000,000 bricks will be required, and the present turn out at Peterborough (the lagest center of the industry) does not exceed 3,500,000 weekly with 37 out of 100 kilns in operation. Even with 100 kilns working, the annual output therefrom would amount only to some 600 millions per annum. The numerous small brickyards throughout the country have fallen into disuse during the war, owing to the cessation of building and the lack of labor, and their condition, after four years of idleness, is such that the former owners would need aid in the form of new capital to make their reopening worth while.

Although there are reported to be 10,000,000 bricks at four yards near Peterborough, it is stated that there are no railroad cars to transport them; and the situation there, as in some other districts, is that while considerable quantities of bricks exist the lack of transport makes them unavailable in places where they are required.

Before the war the price of brick averaged from $6.00 to $8.50 and now the price has advanced to $19.50.

CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Familiar Voice From the Hudson River District.

Editor The Clay-Worker:

In response to your inquiry I am glad to say that the brickmakers on the Hudson are again getting busy. We, in common with all manufacturers, are experiencing difficulty in getting sufficient help to operate our plants. Labor is scarce and comes high these peace times, but we are getting under way, with a fair prospect for a busy, if not altogether happy season. This is indicated by the building permits which show a very satisfactory increase over recent years. The total permits issued in 1918 in all four boroughs of Manhattan, Bronx, Brooklyn and Queens, January to July, amounted to $24,087,224.00. For 1919 they totaled $85,736,195.00 an increase of $60,748,971.

My good neighbor, Frank DeNoyles, of Haverstraw, who, in addition to being one of the very best brickmakers on the Hudson, is a very kindly man. He has a heart of gold and is always mindful of the welfare of his fellowmen. In a recent communication he enclosed the accompanying verse. I am sure the sentiment expressed will find a hearty response in the minds of many of the readers of The Clay-Worker, particularly the good fellows of the N. B. M. A.

With good wishes to you and your associates, I am,

Sincerely,

New York City, June 10, 1919. W. K HAMMOND.

"TELL HIM NOW."

If with pleasure you are viewing
Any work a man is doing,
If you like him, or you love him,
Tell him now:
Don't withhold your approbation
Till the funeral oration,
As he lies with snowy lillies
On his brow,
For no matter how you shout it
He won't really care about it.
He won't know how many tear drops
You have shed;
If you think some praise is due him,
Now's the time to slip it to him,
For he can not read his tombstone
When he's dead.

More than fame and more than money,
Is the comment, kind and sunny
And the hearty warm approval
Of a friend,
For it gives to life a savor,
And it makes you stronger—braver;
And it gives you heart and spirit
To the end.
If he earns your praise, bestow it—
If you like him, let him know it.
Let the words of true encouragement
Be said.
Do not wait till life is over,
And he's underneath the clover
For he can not read his tombstone
When he's dead.

How a Canadian Brick Man Handles the Labor Problem.

Dear Secretary Randall:

I received your letter of June 24, enclosing leaflets issued by the U. S. Department of Labor, and as this is our national holiday and the plant is closed, I have time to reply to your letter.

There is a constant demand for more wages. We have tried to better conditions during the last year by granting them a 9-hour day and Saturday afternoon off, making 50 hours a week's work, which I find is working out alright. We are getting out as many bricks in 9 hours as we got in 10 hours a week's work, which I find is working out all right. We Saturday mornings. The foremen all try to get dryers full for over Sunday, so that they will be drying and it puts pep into everybody who is worth while. I am personally well satisfied with the change, but would not like to say that the same work could be done in 8 hours, as I believe our machines have reached the limit of speed that a man can keep up with and do efficient work.

There is a big demand for brick for small house building. We are going nearly to capacity now and are keeping up fairly well with orders. The big jobs are sure to come later, as soon as the labor question gets settled.

We can get plenty of men just now, but not many of the right kind for brick plants. I do not have anything to do with the selling end of the business, but I often think, where can you find a business that is handling the weight of material that a brick man has to handle. When you consider the number of times it has to be handled from clay bank to cars or wagons, also burn from 1,400 to 1,600 pounds of coal on each thousand brick, power and burning, for $12.00 or $14.00 on cars at plant, no other business in the country is giving as much for money received.

Thanking you for the leaflet, I remain,

Yours truly,

WM. BURGESS,

Supt. Don Valley Brick Works.

Toronto, Ont., Can.

Starting Plant in South Carolina.

Editor The Clay-Worker:

Please send me a sample copy of The Clay-Worker. I am contemplating starting a brickyard at Laurens, S. C., and desire to get in touch with parties in or near South Carolina who have brickmaking machinery for sale, either new or secondhand.

Thanking you for any assistance you may render me, I am,

1415 N. street, N. W. Very truly yours,
Washington, D. C. H. M. FRANKS.

Old Firm Under New Name.

Publishers The Clay-Worker:

Enclosed find our check to cover subscription to The Clay-Worker to August, 1920.

Our firm name has been changed from the Paterson Clay Products Company to the Paterson Fire Brick Company. We make fire brick only for metallurgical and similar purposes. While we have made nothing but fire brick for several years, we only recently changed our title.

ALEX. PATERSON,

Clearfield, Pa. President, Paterson Fire Brick Co.

Tennessee Brickmaker Pays High Price for Fuel and Labor.

Editor The Clay-Worker:

Enclosed find my check for subscription to The Clay-Worker. Building is very slow down here on account of high prices; labor is a little more plentiful than it has been, but no cheaper, hence brick are high. There are no residences for rent and some building will have to be done. I am between two fires, high labor and fuel, and the public calling for cheaper brick, and holding off on account of high prices.

Very respectfully,
Murfreesboro, Tenn. F. R. HENRY.

Looking for Information Relative to Frit Glazes.

Editor The Clay-Worker:

Enclosed find stamps for which send me a copy of your latest issue of The Clay-Worker. Would also thank you for the addresses of firms dealing in fritted glaze for low burning temperatures (0.4 or 0.5) of a body consisting of English china, English ball clay, feldspar and flint fire body in Seger Cone 0.1. I want a glaze which will not crack or show fissures on a body which is quite porous.

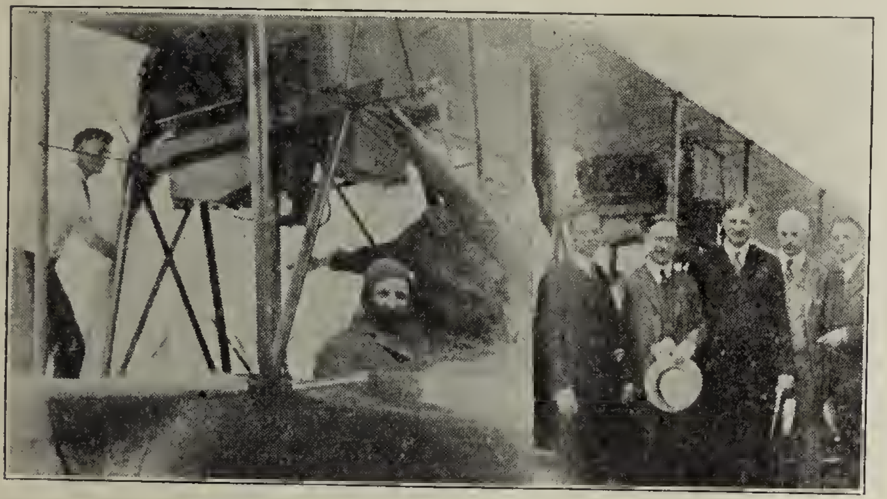
Thanking you in advance, I am,

Sincerely yours,
HUGO KOHLER.

Terra Cotta Men at Atlantic City—M. E. Gregory Takes a Trip in a Flying Machine.

Editor of The Clay-Worker:

I have been enjoying a summer vacation here at Atlantic City, having an apartment here for the months of June, July and August. It is surprising how many friends from various sections of the country one meets here on the Board Walk. I recently ran across our old friend, M. E. Gregory, of Corning, N. Y., who was here attending the meeting of the Terra Cotta Manufacturers. I enclose a snap shot taken of Mr. Gregory as he was about to set sail in a flying machine, which I am sure will interest you. Mr. Gregory enjoyed the flight immensely, his one regret being that it was of such short duration. I have been expecting to make a trip to Indiana and hope to do so now soon. Hope to catch you at home and to tell you in detail the wonderful success that we are having in the clay and porcelain field.



M. E. Gregory, Corning, N. Y., "Going Up."

With best personal wishes, I am,

Yours very truly,
JOSEPH L. BUCKLEY, Sales Mgr.,
Philadelphia Drying Machinery Co.

The Clay-Worker A Welcome Visitor.

Dear Mr. Randall:

Enclosed find my check for another year's subscription to The Clay-Worker, which is always very welcome.

Our plant has been idle for eighteen months, but we started to make brick the last week in May, and are now on our fourth million and regret it is not our tenth million, for business is good. As the story goes, "it's red hot and still a heating." We hope the good work will keep up. With best wishes,

Yours very truly,
Chattanooga, Tenn. R. C. GANGWERE.

Quaker City Shy on Building.

Editor The Clay-Worker:

Enclosed find our check for Clay-Worker subscription account. Brick business in the Philadelphia region is not over 50 per cent. normal. While Philadelphia is in need of at least ten thousand houses, for some reason or other builders are holding back. We presume for lower prices on building materials. Our shipments to New York and Baltimore are above normal, showing that the building interests of these two cities are not holding back on account of present prices.

Yours very truly,
AUBURN SHALE BRICK CO.
Auburn, Pa. Thomas B. Dreher, General Manager.

Contemplates Oil for Fuel.

Editor The Clay-Worker:

Enclosed find check for subscription to your valuable paper. The building operations in the far northwest section are still very slow, and hence brick business is not what it ought to be. Wages are still increasing and we are now strictly on an eight hour basis. We use wood for fuel, and this is just twice as high as three years ago. We are considering the installation of fuel oil, and if any of your readers can give us a comparison between wood fuel and oil, we would be pleased to have such information.

Yours very truly,
FAIRMONT BRICK AND TILE CO.

Anticipates Fair Business.

Dear Mr. Secretary:

We enclose herewith our membership fee of $5.00 which please place to our credit.

In reference to the brick business, advise that we anticipate a pretty fair business as we approach the fall months. It is further our opinion that if the manufacturer and jobber can be patient conditions will soon adjust themselves when work will be a great deal more plentiful.

Yours very truly,
A. B. MEYER & CO.,
Indianapolis. A. B. Meyer, President.

Compliments June Issue.

Friend Randall:

Your items in June Clay-Worker on "Own Your Own Home" were very much to the point and as that subject has dominated me for these many years, the articles greatly interested me. Workingmen's homes will greatly settle the spirit of "Unrest" and the sooner the capitalist and financier class realize this and set to work building homes, the safer and better it will be for capital and its class.

Gee whiz, what a lot of management and effort is up to you in securing the fine aggregation of talent at your conventions. Very best wishes.

Yours ever,
New York City. DANIEL V. RYAN.

One of the things we have learned from the big war is that this is a great fighting nation, but is not and has no notion of becoming a military nation.

Written for The Clay-Worker.

SEEN IN NEW JERSEY.

ALL OVER THE state building operations are reviving. Records of the building departments of every city in the state show gains as compared with last year and the year before, though none of them are up to normal. But the fact that they are developing is sufficient to indicate that eventually builders will be back on a pre-war basis and the numerous building contracts which have been held in abeyance for two or more years will be fulfilled. It becomes increasingly evident that much building is required in order that the cities and towns have sufficient housing to accommodate their people who want homes. Capital is still hard to get, but those interested in structural work are beginning to seek information regarding cost and are showing in various ways that they mean to begin shortly to develop their building in their respective communities. Brick still hold their high price and with various handicaps troubling makers it seems likely that they will be rather slow in developing their business for a good while to come. All the machinery and materials required in the operations around a brick yard are high, too. No indication of a reduction in price of any of them is seen. Some are of the impression that the prices of all these elements of brick manufacture will be higher in the future.

In Paterson common brick are selling at $18.00 on the job. Hackensack yards are getting $15.00 at the yard. Newark is asking $17.50 to $18.00, but these all have to be shipped in, chiefly by water. New Brunswick is getting $15.00 to $16.00. Trenton is asking $15.00. In Jersey City the price is $15.00 to $17.00, depending upon the distance of shipping. These are all fair prices for the material as conditions are now and represent what builders have to pay for their brick, some on job, some f. o. b., ready for delivery. Builders are becoming accustomed to the high prices now and it doesn't frighten them as bad as it did.

Paterson has authorized the construction of two brick grade schools this year and next at a total cost approximating $1,000,000. Next year it will authorize the erection of a new high school at a cost of at least one-half million dollars. Several apartment houses are under consideration and only await the loan of capital sufficient to carry the projects through. Construction in Jersey City will be larger this year than since the war began, comprising apartment houses, new factories, one or two new schools and innumerable separate dwellings Brick is likely to be the principal material used in the work. Newark is endeavoring now to catch up with hindered construction and the list of new buildings to go up is so long that it is almost a catalog. Some of them have the capital already provided and some have not. The value will be many millions of dollars in excess of anything done during the war period, or perhaps for several years before. Trenton is planning a good deal of new structural work, some of factories, a few public buildings and a good many dwellings. New Brunswick will have some structural work, but nothing definite is given out regarding what it will be.

John Quigley, building inspector of Paterson, says that the number of permits filed in Paterson during June exceed by nearly double, the number filed in June last year, including both business, factory and dwelling development. He thinks that the builders are beginning to see their way clear to get to work and that the future will see a good development in this city. It is noted that Paterson manufacturers are waiting for the time when they can erect new mills and additions to present factories. Probably $10,000,000 will be expended in this city in the next year or two in new mill construction. While this is not official the talk of the large manufacturers seems to indicate at least that sum. It is more than in any two or three years since the big fire.

Nathan H. Sloan, of Paterson, broker, says that he is getting more inquiry than he has had for a number of years and that builders are taking hold as they haven't done in a good while. He says that he gets numerous inquiries from out of town which seems to indicate that he will have a good business again in a short time. "You can say for me," said Mr. Sloan, "that business is picking up some, and the outlook is good for further development, not only here, but, as I hear, in other territory near here as well.

Along the Hackensack the yards are doing a fair business. But they are more or less handicapped for lack of help and are obliged to operate to only partial capacity. The Hackensack Brick Company is about the only one that is in position to run its plants to capacity and it is doing so. Its customers are scattered all over northern New Jersey and it delivers much of its product by motor. Its yards are all in operation now and it has contracts sufficient to keep them going all the season.

Not a schooner has been seen on the Hackensack thus far this year. The boats that have done service carrying brick for years were wanted for other uses during the war and they haven't yet returned. Some of them never will come back and brick will go down the river by barge in the future, while others will probably return to the service they have been doing for the past fifty years in some instances.

A. L. B.

HIGH GRADE FIRE BRICK.

It is claimed by many in the industry that the highest grade fire brick are produced by the soft mud process. This may or may not be true, but it is certain that a very excellent grade of fire brick may be made by a heavy service machine of the type mentioned; such, for instance, as the Potts self-striking machine pictured on page 97 of this issue. It is a large capacity machine for which many advantages are claimed by Potts & Co., who back up their claims with actual guarantees. They solicit correspondence.

THE BOOK OF SMILES.

The good things of life come high but it is well to remember that in the long run the best is the cheapest. This axiom is illustrated in the Book of Smiles for June, which among other clever hits offers the following:

GOING UP.

She's tall and stately and serene;
He's shorter than he might have been,
And yet they love each other well,
Though there's one drawback, sad to tell.
Whenever he desires a kiss,
this
like
just
He has to tiptoe—

The Smiles editor asks, "Would you have an auto without roller bearings?

"Then, why use old style, time-and-laborwasting drier cars? Their day is past.

"The Standard Roller Bearing Drier Cars," the editor continues, "are equipped with our patented, flexible self-adjusting journal box. They eliminate friction and keep the loaded car running smooth and easy." There are several other advantages. If you are interested, write the Standard Dry Kiln Co., Indianapolis, for further particulars. See ad on page 20.

MID-SUMMER MEETING OF THE A. C .S.

AS PREVIOUSLY announced in The Clay-Worker, the mid-summer meeting of the American Ceramic Society will be held at Buffalo, August 4, 5 and 6. Points of interest in and around Buffalo and Niagara Falls will be visited and the party will proceed by boat on Wednesday to Cleveland. The Buffalo local committee is endeavoring to arrange such interesting trips for the ladies as an inspection of the factory of the Larkin Company and the Shredded Wheat plant, and they will also enjoy the Falls and the ride on Lake Erie.

Cleveland, Thursday, August 7.

Members will arrive on the Buffalo boat at 8:00 o'clock and will breakfast at the new Cleveland Hotel. Choice will then be given for several trips:

1. Enameled Products Company.
2. Vitreous Enameling Company.
3. Cleveland Metal Products Company.
4. Nela Park, Research "University" of the National Electric Lamp Company.
5. National Carbon Company.

There may also be an opportunity to visit the Bedford China Company, Bedford, Ohio.

The party will lunch at the Hotel Cleveland and afterwards go to the Cleveland Yacht Club where a complimentary smoker and dinner will be given by the Northern Ohio Section of the American Ceramic Society.

This post-war meeting promises to be one of the best summer meetings ever held by the Society. Members should arrange vacations so that they can combine the enjoyment of the scenic beauties of Niagara Falls and a boat trip on Lake Erie with the social and educational features which characterize the meetings of the A. C. S.

S. C. LINBARGER,
Chairman Buffalo Local Committee.
R. D. LANDRUM,
Chairman Cleveland Local Committee.

AUDITOR'S REPORT OF RECEIPTS AND DISBURSEMENTS OF THE WAR SERVICE COMMITTEE ON BRICK.

THE WAR IS OVER, but it has left many "trails" which cannot be forgotten. An aftermath, which will be of interest to many of our readers is the financial statement for which we are indebted to Secretary R. D. T. Hollowell, and which is certified to by Ernst & Ernst, Public Accountants, Chicago, Ill.

An analysis of the figures develops one or two rather surprising features. The largest individual zone contribution came from Group 6, of which W. E. Dunwody, Macon, Ga., second vice-president of the N. B. M. A., was chairman. The second largest contribution was from Group 10, of which F. W. Butterworth, Danville, Ill., was chairman. Looking on the other side of the ledger, it will be noted that the largest item of expense was for legal service. Trust the lawyers to get theirs. For many reasons, we may all rejoice that the war is over.

General Account—War Service Committee on Brick—Chicago. Period July 25, 1918, to July 9, 1919, Inclusive.

Receipts.

Loan American Face Brick Association...			$ 1,200.00
Dues:	Group		
1	New England States	$ 380.00	
2	Eastern New York	635.00	
3	Northern New Jersey	140.00	
4	Eastern Pa., Del., S. New Jersey...	270.00	
5	Maryland, Va., D. C., Eastern N. C.	315.00	
6	Tenn., Western N. C., S. C., Ga., Fla., Ala.	1,229.25	
7	Western N. Y.	250.00	
8	Western Pennsylvania	275.00	
9	Ohio, W. Va., Eastern Kentucky....	None	
10	Ill., Ind., Southern Wis.	920.00	
11	Michigan (Southern Peninsula)...	400.00	
12	Miss., La., Ark., Tex. (except El Paso)	685.00	
13	Washington and Oregon	None	
14	Cal., Nev., Ariz., N. Mex., El Paso..	235.00	
15	Colo., Utah, Idaho, Mont.	240.00	
16	Mo., Kans., Neb., Iowa, Okla.	690.00	
17	N. Dak., S. Dak., Minn., N. Mich. and Wis.	390.00	
18	Chicago	500.00	
			$ 7,554.25
Assessments on Allocations			5,427.59
Other source			5.00
Special Account No. 1			.85
Refund Insurance Premium			1.54
Refund Committee of Public Information			1.45
			$14,190.68

Disbursements.

Loan Returned	$ 1,200.00
Salaries	4,267.85
Rent	288.00
Telephone	206.43
Telegraph	309.57
Traveling and Incidental Expense	184.03
Supplies	128.01
Printing	604.45
Postage	190.00
Miscellaneous	109.78
Towel Service	7.15
Janitor and Ice	30.00
Freight and Drayage	264.16
Legal	5,911.54
Refunds	40.00
Audit	40.00
Paid to Common Brick Mfg. Association	409.71
	$14,190.68

Special Account No. 1—War Service Committee on Brick—Chicago. Funds for Freight Rate Case. Period July 25, 1918, to July 9, 1919, Inclusive.

Receipts.

Group No. 10	$ 968.33
Group No. 16	354.80
Face Brick Dealers Association of America	600.00
	$1,923.13

Dusbursements.

Attorney Fees	$1,922.28
War Service Committee on Brick to close Acct.	.85
	$1,923.13

A FINE CATALOGUE OF POTTERY MACHINERY.

We are indebted to the Crossley Machine Co., Trenton, N. J., for a copy of their complete catalogue, an interesting book which contains many interesting illustrations and much instructive text relative to their machinery, which embraces almost every successful device necessary for the production of high-grade pottery, tile, etc., ranging from clay disintegraters to batting-out machines. The latter may be a new phrase to many of our readers, but the device is a labor saving machine used by potters of the up-to-date sort. The cover of the catalogue bears the interesting slogan: "When quality is considered, Crossley machinery is cheaper," and the Crossley company back up that statement to the limit. As stated in their ad on page 88 of this issue, they are engineers to the clayworker. In the field of pottery, they are recognized leaders. If the reader has any mechanical problem to solve in the clay line, ask Crossley.

Written for The Clay-Worker.

KANSAS CITY BRICK AND BUILDING NEWS.

BUILDING OPERATIONS in Kansas City and this territory have reached a pace that has not been experienced for at least two years, according to the brick and clay manufacturers and the building supply dealers. The spring season was, it is true, just a trifle slow in starting, but once it was under way, every available brick in Kansas City and the yards surrounding the city have been sold for a long period of time. One of the largest manufacturers at Kansas City said it was his opinion that it could be truthfully said that there was not a brick even in the kilns that was not sold.

A large number of big buildings are now under construction at Kansas City and others soon will be. There has long been a dire lack of rental property in Kansas City due to the lack of building operations during the war and also of small homes. F. C. Sharon, president of the Kansas City Real Estate Board headed the spring and summer drive of the "Build Now" campaign at Kansas City, and steadfastly drove home his argument of reasons why homes and apartments should be built immediately. The Real Estate Board behind this movement scattered a great deal of effective propaganda which has brought extremely good results.

The Kansas City Star, which is the largest daily newspaper published in this city and territory recently began the publishing of statements lauding the fame of the city. Among the statements that appeared were, "Do you know that the beauty of Kansas City's residential sections is unsurpassed by any other city?" and, "Do you know that the largest clay products business in the United States was built up in Kansas City?"

The first statement caused the newspaper at the suggestion of the Kansas City Real Estate Board to organize a most beautiful home contest. This the newspaper has done offering cash prizes totaling $600.00 for the most beautiful homes submitted for competition in the contest before October 1.

Such a wide spread effect upon business in general has the Kansas City Star made in the "Do you know" series lauding the city that the leading representatives of big business in Kansas City have formed an organization for the purpose of advertising Kansas City through the columns of some 120 daily newspapers in the United States, England and France. The advertising campaign is going to cost the business men of Kansas City close to $75,000. This fund is being raised by subscription. Walter S. Dickey of the Walter S. Dickey Clay Manufacturing Company at the initial luncheon headed the organization with the first and one of the largest subscriptions for the fund amounting to $2,500.

Brick the Main Building Material.

Most all of the small houses and the large ones as well and all large buildings and apartment houses which are now under construction or for which contracts have been let in this city specifies brick as the main building materials. Of the larger homes and some of the buildings terra cotta and tile roofing feature important building materials in the specifications. H. F. Williams, manager of the Kansas City branch of the Hydraulic Press Brick Company, said, "Kansas City is not only prosperous but it is booming and never before has the brick and clay products received such a stimulant as has been reached this spring and summer season. Every plant that I know of is taxed to capacity and nearly every organization is completely oversold. Few firms in the brick manufacturing business that I know of are booking orders for immediate delivery."

Not only have the building brick manufacturers received a heavy demand for brick but the manufacturers of paving brick also have received just as great a stimulant. The Western Paving Brick Manufacturer's Association recently held its regular monthly meeting of directors at the office of the secretary, G. W. Thurston, in the Dwight building. The association has expanded to embrace refractories in the following states in the last few months: Iowa, Nebraska, Kansas, Missouri, Oklahoma, Texas and Illinois. Contracts have been let for more than two million yards of brick paving in this immediate territory and the contracts for brick paving so far this season have more than doubled in Kansas City, over 150,000 yards having already been laid on the main traffic thoroughfares of the city, such streets as Twelfth Street, Thirteenth Street and Fourteenth Street representing the heaviest traffic arteries running East and West in the city and McGee Street Traffic Way and Grand Avenue the heavy traveled arteries, running North and South will give up the old paving laid several years ago of asphalt for vitrified brick blocks.

Paving Brick Manufacturers Share in the General Activity.

The plants of the Western Paving Brick Manufacturers' Association are all working close to capacity, as close to capacity as the labor situation in the brick manufacturing business will permit. There has been a great deal of labor scarcity in this industry in this territory. Competent and experienced labor is extremely hard to procure, regardless of the fact that the scale of wages is higher than it ever has been before. Reasons vouchsafed for this condition by manufacturers of face brick, common brick and paving brick and clay products of all kinds and descriptions, are that most of the men experienced and engaged in the manufacturing of brick and clay products during the war either entered the service or were forced to find more profitable employment elsewhere during the period that the brick factories were forced to close during the war, and these men, having found steady employment in other lines of business have been slow to return to their trade. However the situation is a bit better this month than it has been before and it is generally conceeded that all the refractories should be upon a full time schedule within the next two months.

Prices at Kansas City have remained practically unchanged, a standard seemingly having been reached and business having been so good and increasing steadily that there has not been the usual spring difficulty of a few firms or individuals engaging in a price cutting war.

The plant of the Walter S. Dickey Clay Manufacturing Company is operating almost upon a full time schedule. The company has done much through its advertising department to influence the use of brick and tile on the farm, especially roofing and in drainage systems. The company has employed special engineers and salesmen to work out the problems of the farmers and has been particularly successful in putting the use of tile and clay products upon the farms in this locality. This business is a big feature with the Dickey company at the present time.

Hydraulic Company Has New Manager.

H. F. Williams, manager of the Kansas City branch of the Hydraulic Press Brick Company, who succeeded H. H. Crowell several months ago, when Mr. Crowell became manager of the Cleveland branch of the company, reported that his company was working close to capacity and had large orders on hand for future delivery. Mr. Williams, formerly was manager of the St. Louis office of the Hydraulic Company and when business opened here he remarked that it was a big surprise to him, the progress that was being made in Kansas

City and this territory. The Hydraulic company is furnishing brick for the Cline Apartments at Linwood Boulevard and Chestnut Street, more than seventy thousand brick being used in this job. The Park Apartments on South Broadway calls for seventy thousand more face brick while the new film Exchange building which is the second specially fireproofed structure in America builded for the film industry, is calling for more than one hundred thousand face brick. The Mutual Building, an office structure is taking seventy thousand face brick; the City Water Department more than fifty thousand; Kansas City Club over one hundred and twenty thousand cream colored face brick; the apartments of the Clark Estate at Thirty-Fourth Street and Broadway more than one hundred thousand and the Bryfogle Apartments at Armour Boulevard and Toost Avenue more than one hundred thousand.

H. Lyle, of the Lyle Rock Company, manufacturers of common brick at Kansas City with two plants, one located on the South side of the city and the other on the North side declares business to be exceptionally good. Both plants of the company are working as close to capacity as is possible. The company has many large contracts on hand and is at present furnishing the brick for the Nafizger Bakery, calling for more than one hundred and fifty thousand, the Linwood Apartments at Linwood and Chestnut street more than three hundred thousand and a new family hotel at Fifty-Fourth and Oak streets, calling for more than one-half million common brick.

Freight Cars Built of Clay.

The Universal Brick and Tile Company, which for some time had sales offices in the Scarritt Building at Kansas City has moved its sales office to its plant and building at 559 Westport Avenue.

The new family hotel which is under construction at Fifty-Fourth and Oak streets is using a large quantity of face brick which was furnished by the Reliance Brick Company, of which F. C. La Fountain is sales manager, through the Eadie Building Material and Supply Company. This new structure is being built in the shape of a huge cross, so arranged that every room will be an outside room. This is one of the most exclusive family hotels in the United States, according to the architects and owners.

Some time ago S. J. Hayde, builder of the Hotel Baltimore, the postoffice building and other large structures at Kansas City discovered a clay shale in Kansas City which forms what he declares to be the best clay aggregate yet found. Mr. Hayde has been interested in mining and burning this clay aggregate, which mixed with cement has formed the basic material for the construction of the concrete ships by the United States Government. Mr. Hayde has been mining and burning this aggregate at the plant of the Builders Brick and Manufacturing Company at the corner of Cliff Drive and Woodland avenue. It was at this plant that the concrete railroad car was built and which stood the most severe wrecking tests to which a freight car could be put and came through practically without a scratch. The United States Railroad Administration, after the tests, declared the concrete car to be superior to the steel car not only in length of service but in cost of construction and more favorable to weight. The railroad administration has ordered ten thousand cars. Joseph B. Strauss built the concrete car with "Haydite," which is the name given to the clay aggregate and cement mixture of S. J. Hayde.

Mr. Hayde is organizing a company for the purpose of mining and burning and mixing the clay aggregate and cement at Kansas City at the present time. The company will erect a plant costing more than $200,000 for this purpose, it is said.

K. A. W.

Written for The Clay-Worker.

BRICK AND BUILDING NOTES FROM DIXIE LAND.

JULY FINDS business with the brick firms, the architects, the clay industries and potteries rather more active than any time this summer. The Mississippi Valley was prolific only of rain during May and June, though building figures showed up reasonably well in Memphis during June. The larger work is just getting well started. Everything seemed to hang on something else and it has been a waiting game. The pottery and clay mining industries in Middle and West Tennessee and West Kentucky are operating with fairly complete list of hands, the boys have returned from the war and the labor situation is much more satisfactory.

The bonds for the city market and auditorium have been placed, the architecural drawings completed and provisions practically made for the site, so ere many months work will begin on this very large undertaking.

The Herbert-Fischer Brick Co., capitalized at $200.000, has made application at Memphis for a charter to manufacture brick, tile and other burnt clay products. The incorporators are W. W. Fischer, G. W. McRae, B. L. Mallory, J. E. McCadden and Wm. D. Kyser.

Geo. T. Murphy, receiver at Huntington, Tenn., has been advertising certain locomotive, trackage, steam shovels and miscellaneous machinery at the mines of the Johnson-Porter Clay Co., about four miles from McKenzie, Tenn.

Contracts have just been let at Memphis by G. M. Shaw and Co., architects for the new buildings for the American Bag Co., and for the Bosworth Bag Co., located in the south part of the city. The contract for the new building for the Bosworth Bag Co., which is to be of brick, was let to F. B. Young & Sons, of Memphis. It will cost about $135,000, and be ready for occupancy October 15. It will be two stories high and will be 250 feet by 150 feet. The contract for the American Bag Co. building was let to Henry Moselodge for $28,600. It will be a one-story addition 200 by 95 feet, in South Memphis and used as a finishing plant.

Work is to be started the middle of July on the erection of the Shelby County Cotton Oil Mill plant in South Memphis, by Hoggart & Sons, contractors of Birmingham, Ala.

At Conway, Ark., a new Christian College is to be erected, a twenty-acre building site having been secured. Donations have been made by W. A. Hill, of Coal Hill and others.

Contracts for the construction of two new buildings at the University of Tennessee, Knoxville, the administrative and agricultural buildings have been let. The Southern Ferro and Concrete Construction Co., of Atlanta, gets the general contract. The two new buildings with equipment will involve an expenditure of $7,000,000.

Architects McGee and Lester, 636-638 Scimitar building, Memphis, will receive sealed bids until Tuesday, August 5, for the erection of a brick jail and jailer's residence, at Savannah, Tenn. L. L. Harbert, of Savannah, Tenn., is county clerk.

Three hundred thousand dollars is the total valuation of the building permits issued last week by City Building Inspector Dan C. Newton, at Memphis, which is more than the total permits for June this year and is equal to June, July, and August of last year. Twelve permits for residences were included.

Notices have been sent out by the Bricklayers' Union No. 1 of Tennessee, to all contractors that the wage scale for that union will be increased from 87½ cents per hour to $1.00 per hour on and after October 1, 1919. All jobs not finished but under way now will be completed at the old scale.

DIXIE.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (In advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. 72. JULY, 1919. No. 1.

CURRENT COMMENT.

Are You Boosting for Clay Products?

* * *

Hogs are high enough in price to be entitled to brick houses and brick-paved runways.

* * *

The man who does things is worth a dozen of the man who just sits around and finds fault with what is being done.

* * *

The main assets in business are, good will, capital, organization and facilities, and among the best of these is good will.

* * *

The open price idea in competition is gaining favor in the clayworking industry, and it is doing its bit to help steady and uniform values.

* * *

The hollow tile folks are now realizing that they can use a smooth outer surface on tile and get along better without that stucco finish on the outside, and at the same time save the builder something in cost.

* * *

One of the things the excess profit tax should teach the clayworking industry is the imperative need for setting up a real value for the raw material used, and making a proper charge for it in the records of the business.

* * *

And now the Shipping Board is coming in for its share of complaints from shippers, the complaints in the main being based on damage to goods in transit and the difficulty of getting satisfactory adjustment. Just another illustration of the fact that private enterprise will beat government administration every time it has a fair show.

Teach, live and practice Americanism.

* * *

How can we develop good, live fish stories now when the great inspiring bait has been prohibited?

* * *

Any common brick will render enough service to justify being properly made and well burned. So don't slight the work.

* * *

The passing of this Fourth of July found more people than ever before fully convinced that this is the greatest country in the world.

* * *

It is time for the strike to be struck out now in favor of a better means for adjusting differences between the men who work and the men who pay.

* * *

The German complaints of hardships in the peace treaty are enough to make us wonder what they really expected was coming to them after what they did to the world.

* * *

It is refreshing to report some good news about the post office department, which comes to us in the return of the two-cent stamp for letters, and proportionate favors on other mail.

* * *

There is absolutely no danger of building being overdone this year. We are fully two years behind time and it will take from three to five years to catch up with operations going at full blast.

* * *

The high price of structural lumber improves the opportunity for the brick man to interest the lumber dealer in the pushing of brick. Are you keeping in touch and developing this interest?

* * *

It is much better to have a shortage of labor than to have some of the disturbing element imported under the guise of labor, and now is a good time to clean house and do some exporting of undesirable people of other nationalties.

* * *

It has taken the lumber industry a good many years to come to an appreciation of the true value of their raw material. How long will it be before the clayworking industry attaches a real value to the clay pit and the shale bank?

COMPARING BUILDING STATISTICS.

We are getting back into building operations at a fairly satisfactory rate, but at that those who get their dope on the situation from a comparison of building statistics now and with previous periods, are likely to get too rosy a view of the situation unless they take into consideration the matter of higher cost today which contributes materially to the swelling of the figures. Building costs are today something like 60 per cent, and in some instances more, above the pre-war cost for the same building. In a word, where there is a statistical showing of practically double the pre-war period in total cost, it really only means that we are getting back to the normal pre-war quantity.

ABOLISH STRIKES.

One of the things we feel should be included in the prohibition list is strikes. Strikes are not real American products, nor do they represent true American sentiment. They are among the things coming here from abroad along with other mental biases, some of which have culminated in I. W. W. and other destructive doctrines and now that there is a general cry going forth to teach and preach Americanism, let us make it a pure brand and teach a sentiment that will abolish strikes. Organization of workmen is one thing, collective bargaining is another, but neither of these should lead to or be followed by strikes as we know them. There are ways to get justice and settle differences of opinion without the strikes which do injury to others besides the contending parties, and it is up to us to get busy at the adoption of these other ways. In a word, to get pure and genuine Americanism, we must put the strike in the discard—on the prohibition list.

THE SOLDIER SENTIMENT.

Whatever may be said about the soldier sentiment as to this and that movement and change, the one thing which stands out clear and well defined is that we have no sentiment among our demobilized soldiers that is likely to lead to militarism. They have demonstrated that this is a fighting nation, but is not now, and is in no danger of being during the present generation, a military nation. We can abolish all fear that military training in our schools might lead to militarism in government. The aversion to the army and military life is so strong that there will likely be great difficulty in maintaining an army of the magnitude required by circumstances under the volunteer system. Our men have learned something of the value of military training, and those who went abroad have learned more of the comparative greatness of their home country, so that they would probably fight for it quicker and harder now than ever before should occasion require, but they have not learned to love the life of a soldier. The soldier sentiment is safe for peace.

TRANSLATING BRICK PRICES.

The best argument with which to meet complaints that brick prices are too high these days is a translation of brick prices into comparative values. For example, we are told that taking commodities as a whole and measuring the purchasing power of a dollar now with that of pre-war days, the dollar is worth just half what it used to be.

Now then, suppose you are asking $15.00 for brick which you used to sell for $10.00; when you translate that properly you are really selling the consumer brick at half the $15.00 as compared to the pre-war value of the dollar, which would be $7.50, or lower comparatively than in the past.

This is the first time there has been any marked change in brick prices. Ordinarily there is not a variation of a dollar a thousand in a ten-year period in brick prices, which proves pretty conclusively that they have always been close to rock bottom. They are still on a close margin, too, and a proper translation of present prices in comparison with other things, including wages, which are the base of most all prices, ought to convince the buying public of their fairness.

THE EATING OUTLOOK.

There is still a strong Hoover element in the food situation and the prospects for materially cheaper eats this year look slim. This is not cheerful news, nor satisfactory news in face of the fact that we have produced a wonderful abundance in this country. But we might just as well face it and make the best out of it. We are being called upon to feed quite an extensive part of the war-torn world, and it is a call that we cannot disregard, nor should we desire to, though it is no fault of ours that a big part of the world is in want of food. We may roar all we please about isolation, but there "ain't no sich animal." The cry of want and hunger is something we neither can nor should desire to resist. So it is plainly up to us to continue doing our bit in the food stuff line, and that is the explanation of why the eating outlook still points to high prices in the midst of plenty. Let us accept the situation and be thankful that we are able to meet it instead of fretting because it pinches, for it is bread upon the waters that will return some day many fold.

BRICK TRADE AND PRICES IN ENGLAND.

England has quite a problem in the reconstruction task before it, and even the brick industry has its troubles in getting under way to meet the needs. Different consular reports coming across are somewhat conflicting, but we gather from them that the brick production in England last year was cut down to 500,000,000. Present production is about 40,000,000 a week, while the full capacity of the yards would be 100,000,000 a week.

One estimate is that 300,000 new homes are required in Great Britain, and that these will require ten billion brick, and that the present production has not gotten much ahead of war time because many of the small yards have fallen into disuse, and during May in Peterborough, given as the largest center of the brick industry, only 37 of 100 kilns were in operation. From this and other reports we can gather that getting under way is something of a problem which will perhaps call for American appliances and methods to help out in fuel and labor saving.

One report tells us something of what has happened to brick prices in England meantime. In an area in the Midlands of England, in the midst of the brick yards and lime and cement works, we are told that 3-inch brick, delivered on site, which formerly sold at $5.84 per thousand, now bring $18.01. The 3-inch blue brick formerly selling round $11.00 and $12.00, now bring $31.12. In London, hard brick which formerly sold for $7.50 to $8.50 now bring $18.25 to $19.50.

KENTUCKY FIRE CLAY DEVELOPMENT.

Kentucky is not only the leader of the southern states in the production of refractory products, but it ranks fourth among the states of the Union in the production of fire brick, its production in quantity being exceeded only by Pennsylvania, Ohio, and Missouri. Development of industry with fire clay as the raw material is still going on too, largely because of the quality and availability of the raw material. Some idea of the Kentucky fire clay prospects and possibilities may be had from the following extracts from and comments upon a report furnished by Ellis Lovejoy on a property located in Greenup county:

Stratigraphy—The clay is known as the Sciotoville horizon, and it underlies a coal designated by the Ohio Geological Survey as Anthony coal. Ten to thirty feet under the clay is another coal bed known as Sharon or No. 1 coal.

"The clay is widely known as the Olive Hill clay and it is the basis of the numerous refractory industries in Olive Hill and Ashland, Ky., Ironton, Sciotoville, and Portsmouth, Ohio, besides being widely shipped to other localities."

The following data is given of a section of the clay bed:

Sandstone Roof	Massive Rock.
Coal	6 to 12 inches.
Plastic Clay	20 to 68 inches.
High Grade Flint Clay	20 to 26 inches.
Impure Flint Clay	18 to 22 inches.

Mention is made of encountering a drab colored clay in the upper part of the plastic clay, easily distinguished from the light gray plastic clay, which is exceedingly refractory and in this respect will rank with the high grade flint and semi-flint clays. Also in one opening was found a plastic member of a dark red color, which is classed as probably the well known "pink-eye" of the Olive Hill district. This, the high-grade flint, the semi-flint, the impure flint and the gray plastic, are classed as typical of the Olive Hill horizon.

Also, as a final proof of the quality, a fusion test showed that it required a temperature of 3300 F. to produce a softening effect on the flint clay, and 3250 for the drab and plastic.

This report, which covers a property of 2,462 acres, estimates that it will furnish material enough to run a fire brick plant of 150,000 daily capacity for from 50 to 100 years.

It is raw material plus enterprise that makes industry, and with raw material of this kind Kentucky is seeking capital and enterprise for further development of her refractory industries.

A MILLION DOLLAR CORPORATION ABSORBS THE J. D. FATE COMPANY AND THE ROOT-HEATH COMPANY.

AN INCORPORATION of much interest to the clayworking trade occurred recently at Plymouth, Ohio, when the Fate-Root-Heath Co., of Plymouth, Ohio, with a capital stock of $1,000,000 was incorporated and took over the property and business of the J. D. Fate Co., and the Root-Heath Co., with the view of taking care of the ever increasing demand for the Fate line of clayworking machinery, and the Plymouth industrial locomotives and other products, to better advantage than ever before.

The history of the J. D. Fate Company is synonymous with the progress of the clayworking trades. Organized in 1877, it has grown with the clayworking business, perfecting and improving the Fate line of clayworking machinery in keeping with the advance of the industry. In 1914, finding a demand for gasoline locomotives in the clayworking industry as well as other lines, the company took up the manufacture of the Plymouth Industrial Locomotive, which has proved a success from the very start, and is now used by some of the largest contracting concerns in the country, as well as by many of the clayworking plants.

The plant of the Root-Heath Mfg. Co., was established in 1895, immediately adjoining the Fate plant, for the purpose of manufacturing hardware specialty machinery, including grist mills, corn shellers, shoe repair outfits, shoe lasts, riveting machines, etc., etc., which are shipped all over the United States, and to foreign countries as well. The company has recently developed a machine for the sharpening of lawn mowers which has met with great success.

The two plants cover approximately twelve acres of land and the ground floor space of the combined factories is estimated at 160,000 feet. A new foundry building is now in course of construction, and in keeping with the other building of the company is being constructed of brick and iron. In addition to this, a fine two-story office building is also well under way. The officers of the new concern comprise the officers of the two old companies, as follows: President, J. A. Root; Vice-President and General Manager, C. E. Heath; Second Vice-President, H. F. Root; Secretary, P. H. Root; Treasurer, H. R. Sykes and Sales Manager, H. J. Votaw.

A NEW BRICK COMPANY AT CLEVELAND.

J. F. Aten, who for many years directed the destinies of the Arnold-Creagor Company, of New London, Ohio, has resigned to assume the office of president of the Superior Brick Company, a newly organized concern of Cleveland, Ohio. As an evidence of his faith in the machinery which he has boosted all these years, Mr. Aten announces that the plant of the Superior company will be equipped with Arnold-Creagor machinery. C. H. Burk, of New London, succeeds Mr. Aten, as secretary and general manager of the Arnold-Creagor Co., manufacturers of the S. S. S. automatic soft mud brick machinery.

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WANTED.

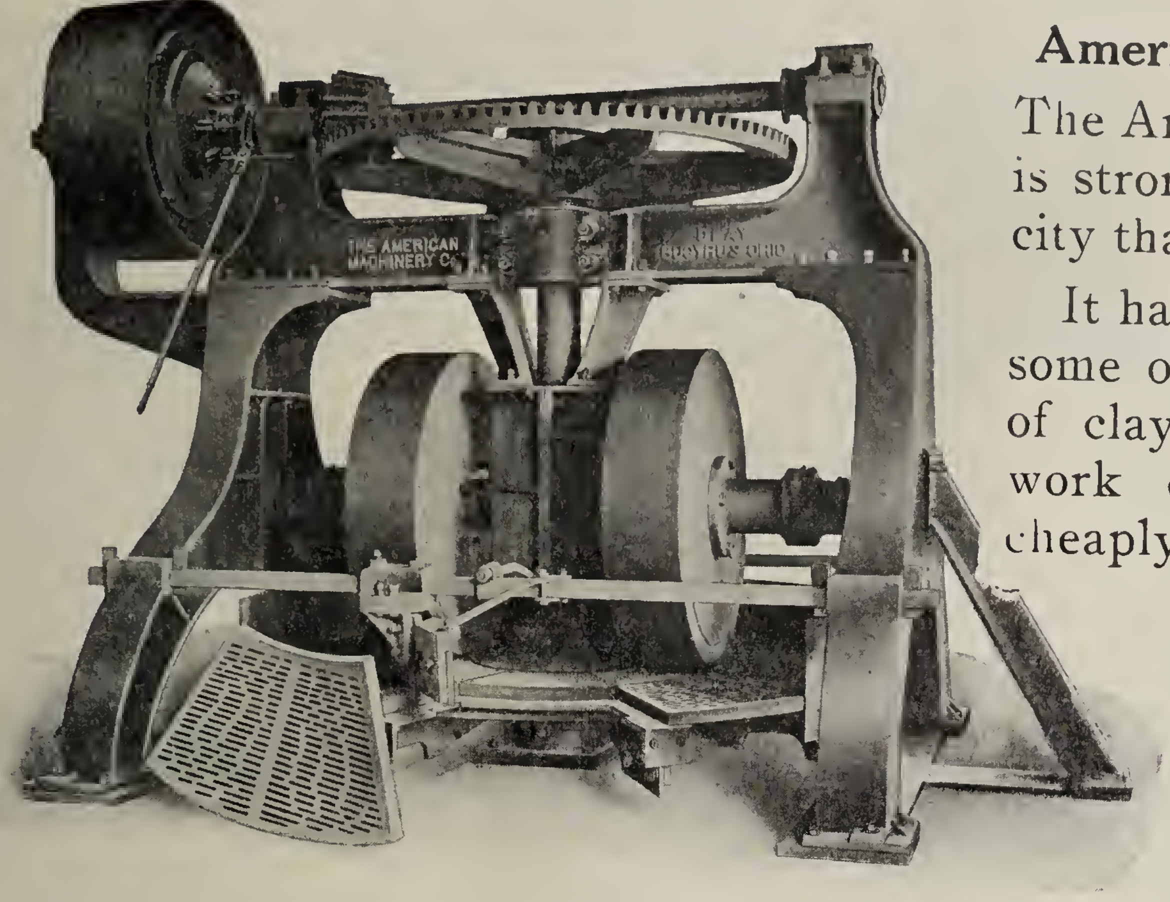
Active interest in a soft mud brick plant, by a man with fifteen years' experience. References exchanged. Address ACTIVE,
71 d Care The Clay-Worker.

SUPERINTENDENT WANTED.

High-class experienced man for Central Pennsylvania paving and face brick plant. Must have producing record. We will pay a good salary to a REAL Superintendent. Address BOX 555,
72 d Care Clay-Worker.

WANTED POSITION

By salesman engineer, 38 years old, with 15 years' experience in clay products, estimating and contracting glass refractories, gas benches, coke ovens, steel industry, sewer and hollow tile construction, general drafting and engineering. Reasonable salary to start. Address BOX 38,
71 d Care The Clay-Worker.



American No. 57 Dry Pan

American No. 57 Dry Pan.

The American No. 57 Dry Pan is stronger and of more capacity than other pans.

It has proven a favorite with some of the biggest grinders of clay and would do your work easily, throughly and cheaply.

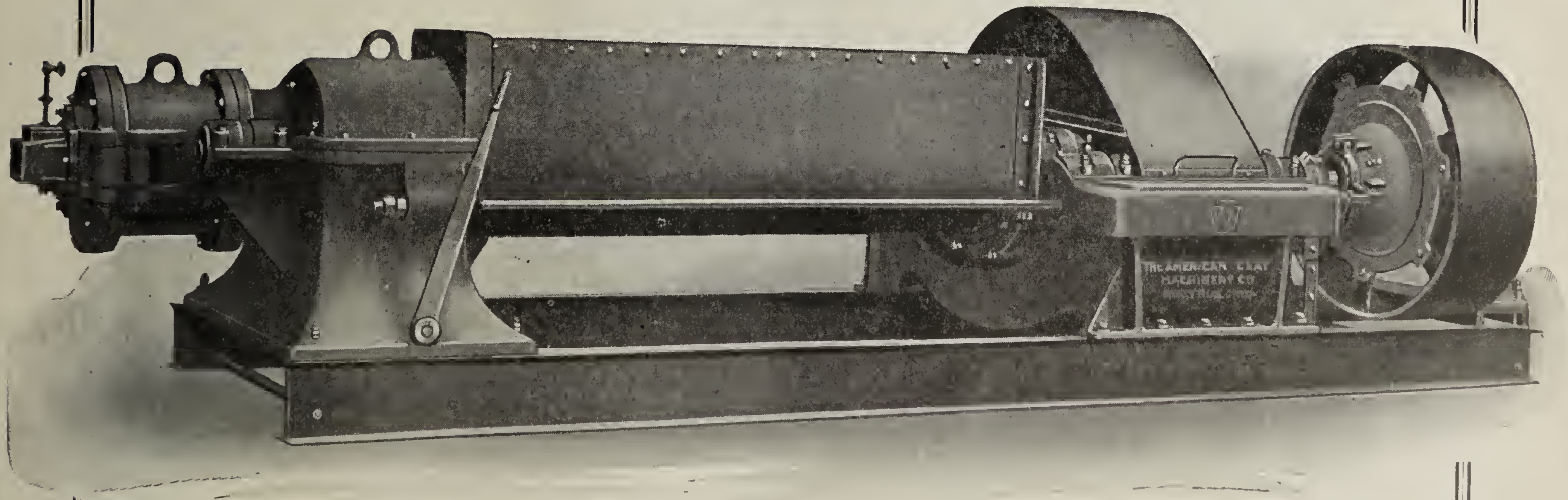
We have a circular descriptive of this pan. We will be pleased to send it to you on request.

American No. 280 Combined Machine.

The American No. 280 Combined Auger Machine and Pug Mill are a combination of two our most dependable machines and are proving a splendid combination. We will be pleased to send you description of this machine on request We build every machine and appliance for making all kinds of clay products.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



American No. 280 Combined Machine.

Take Your Choice

You can save half of your burning cost or more, if you want to.

The Haigh Kiln is designed to save coal and to insure better and more evenly burned product.

We will be pleased to show you how we can save in your burning costs. It costs you little to find out what the possibilities are and then you can decide whether to go into it or not. Correspondence solicited.

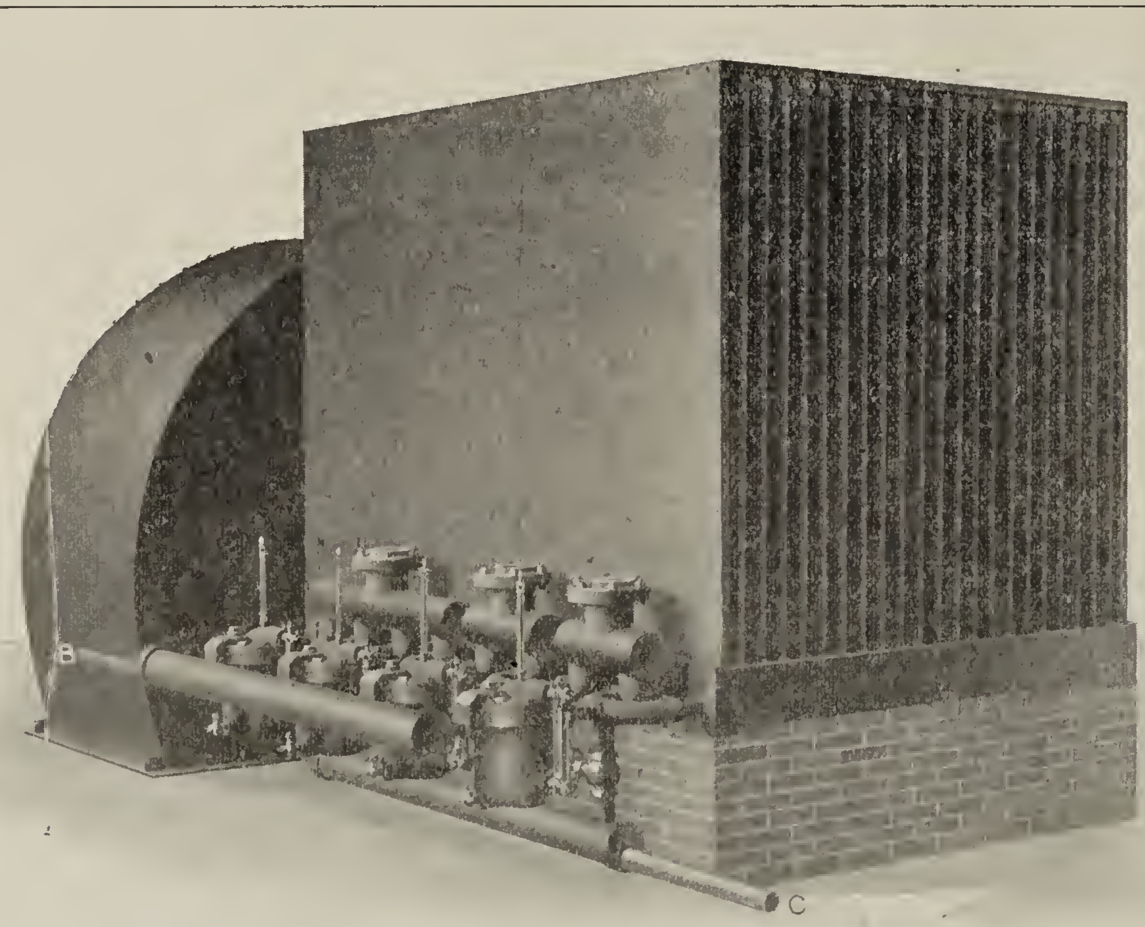
Coal Used?

1250 lbs. or 480 lbs.

Per Thousand BRICKS

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



American Waste Heat Dryer.

We take the waste from your cooling kilns and dry your product with this waste.

Let us show you the possibilities of saving in drying or burning or both.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

EDITORIAL NOTES AND CLIPPINGS.

H. Simonson and Joe Lautner will build a brickmaking plant at Florence, Ala., of 20,000 daily capacity.

Nace Brick Company has been incorporated at Moultrie, Ga., by William W. Nace and others, with $10,000 capital stock.

The Shreveport (La.) Brick & &Tile Company contemplate ing $50,000 improving their plant. The daily capacity will be increased to 250,000 brick.

Fire which originated in the boiler room of the Alhambra Tile Works, Newport, Ky., caused a damage of $30,000. Nearly all of the machinery was destroyed, and will have to be replaced.

The Harbison-Walker Refractories Company, Pittsburgh, Pa., has declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable July 19 to stockholders of record July 9.

Herbert-Fischer Brick Company, Memphis, Tenn., capitalized at $200,000. L. Mallory, W. W. Fisher, G. W. Macrea, J. E. McCadden and William D. Kyser. The company is chartered to engage in brick and tile manufacture.

Trausch Bros., of Roseland, Neb., have traded their brick plant to the Lincoln (Neb.) Building and Loan Association. The association officials plan to use all the brick that can be turned out in building operations in Lincoln.

The plant of the Mexia Brick Company, Mexia, Texas, has been overhauled and the capacity increased by the installation of new machinery. John Neece is the new manager of the plant which is to be run at full capacity for an indefinite time.

The brick plant of the J. H. Connelly Co., Berlin, Conn., was destroyed by fire July 2, which is supposed to have been of incendiary origin. While the fire was at its height, flames broke out in another part of the town, causing considerable alarm. The brickyard loss is placed at $70,000.

The directors of the Onondaga Pottery Company, Syracuse, N. Y., have voted to increase the capital stock of the company from $75,000 to $1,500,000. B. E. Salisbury, president of the concern, states that increase is to take care of expansion which has been made. Business with the company is excellent and the officers are very optimistic over the future.

A lease on the $30,000 factory of the American Fire Brick Company at Liberty avenue was closed recently by the Inland Empire Pottery Company of Spokane, Wash., manufacturing clay products. Over 5,000 articles of pottery are being turned out each day at the plant. The company is composed entirely of Spokane men. The principal stockholders are P. H. Lippy and I. S. Liddell.

The large modern brick plant of the Hocking Valley Products Company, located at Greendale, O., with a capacity for manufacturing some 25,000,000 high-class face brick per year, which closed during the war, has resumed operations owing to the spreading demand. Orders received during the past thirty days at very satisfactory prices cover a territory from Canada to Florida and from New York to Iowa and Wisconsin, and the officers look forward to a long period of building activity. The plant is operated by electric power, the company owning coal mines, which are connected with company's power station and brick factory by electric railways.

The Durro Brick Co., of Akron, O., is making a number of improvements in its plant, including the erection of three new kilns.

The Beaver Coal & Clay Co., of Cincinnati, Ohio, has been organized by H. A. Couse, L. C. Shields and others. The company is incorporated with a limited capital stock.

The Nussman-Kennerly Brick & Lumber Co., of Raleigh, N. C., has certified to a change of firm name and will hereafter operate as the Nussman Brick & Lumber Co.

The Canton Chamber of Commerce has made arrangements for the establishment of a brick and tile plant at Canton, Texas, where there is a good market for first class building brick.

A new vitrified brick plant to cost $75,000 is being erected at Tulsa, Okla., by the Tulsa Vitrified Brick Company. W. R. Ritchie, manager of the plant, has charge of the construction work. The plant will have a daily capacity of 75,000 brick per day.

The Marshfield Brick & Tile Company of Marshfield, Wis., is adding three new kilns to their equipment. The demand for the Marshfield product has been increasing to such an extent that the company has had to increase the capacity of the plant. Each of the new kilns which will be of the round down-draft type will hold 100,000 brick.

The Beston Plastic Fire Brick Co., Inc., of Rome, N. Y., announces that with the recent incorporation of the company, Frank J. Jewell was elected president and secretary and Nelson Adams, vice-president and treasurer. The concern turns out plastic fire brick for boiler furnace linings and baffle walls and "hi-heat" cement for use in the boiler room.

Alexander Biernbaum, a large building contractor of Detroit, Mich., has purchased the plant of the Defiiance (Ohio) Clay Products Company, which has been operated by C. Diehl. The plant has been recently overhauled and is in splendid condition, and will be continued in full operation. T. F. Downey and W. J. Bohannon will have charge of the plant for Mr. Biernbaum.

The brick manufacturing plant at Temple, Pa., which has a capacity of 15,000 daily, has been acquired by the Maidencreek Quarry Company, a new corporation organized recently by John J. Whitman, Ernest B. Posey and Milton R. Rundle as the incorporators. The plant will be modernized with machine presses and driers, and its capacity will be doubled. The Pennsylvania Railroad will run a track into the property, which will produce dark Flemish type of building brick.

A company has been incorporated with $50,000 capital stock at Johnstown, Pa., the purpose of which is to re-equip the Green Hill brick plant at that place. The officers of the concern are: President, H. J. Meehan; vice president and general manager, W. W. Martin; secretary and treasurer, A. M. Custer; board of directors, A. K. Cosgrove, Harry L. Tredennick and the officers named. The new plant will have a capacity of 50,000 bricks a day when equipped fully.

The Chelsa China Company has started to operate in New Cumberland, O. This plant, which it is said, is backed by Wheeling capitalists, is to be the only one in this section of the country that has a continuous kiln, which takes the ware when it is green and sends it out a finished product. The cost of installing the kiln is said to be $150,000. One kiln has been installed and another will be put in later. The plant which is not yet fully equipped, will represent an outlay of approximately $300,000, it is said. About 125 men and girls started to work last week and as soon as the plant is completed, it is said, that the company will employ 250 or 300 employes.

The Purington Paving Brick Co., Galesburgh, Ill., announced 10 per cent. increases in wages for all employes, July 1.

Lilliard & Smith will erect a brick plant at Lester, Ark., and would like to receive prices on an equipment for turning out 20,000 brick per day.

The Okalona Brick & Tile Co., of Wilmington, Del., has been incorporated by M. L. Rogers, L. A. Irwin and W. G. Singer, all of Wilmington.

The Ridgway (Pa.) Brick Co.'s plant is now in operation, after having been closed for some time, owing to war time restrictions. B. Gunsaullus is in charge of the plant.

D. C. Reardon, secretary of the Rockcastle Cement & Lime Co., Baltimore, Md., writes that they will build a hollow building brick on the company's property at Pine Hill, Rockcastle county, Ky.

The Shaw Pottery Company of Trenton, N. J., has filed a petition in bankruptcy. The liabilities of the concern are listed at $41,037 and assets at $39,032, of which $30,000 is given as value of the firm's plant and real estate.

The Walter A. Zelnicker Supply Co., of St. Louis, has added 2,000 square feet to its present office space at 325 Locust street, St. Louis, Mo., an increase of 33 1/3 per cent. This improvement will enable this organization to continue to efficiently render Zelnicker service.

James Oberly & Son of Wilmington, Del., is experiencing a very busy and prosperous season. They have orders on their books for about all they can handle, and the average price is $20.00. They are using trucks to facilitate their delivery and find this method very satisfactory.

Fire of unknown origin did considerable damage to a portion of the old plant of the National Brick Company at Lapairie, Quebec, July 7. Quick work on the part of the fire brigade from the plant prevented the flames from spreading, however, although the men were still at work on the plant late last night. An exact estimate of the damage has not yet been given out, although it will amount to several thousand dollars.

John E. Melvin, aged 6, won a verdict for $15,000 recently in a damage suit against the Standard Brick & Tile Company, Portland, Ore. The youngster lost the sight of his right eye and three fingers were blown off when a dynamite cap left in an unlocked powder house of the brick concern exploded in his hands. The trial was on for two days. The powder house, where the accident occurred, was at Sylvan. There was evidence that the door had not been locked and in some manner the child, playing in the vicinity, picked up a dynamite cap. The suit was brought by E. E. Melvin, father of the boy, and asked for $25,000.

No more orders for prison-made brick are being accepted by the Ohio state brick plant. The entire supply for the year at the Junction City plant has been disposed of, and the State Highway Department will begin advertising at once for brick for several new roads. Under the law, the highway commissioner must first ask the board of administration whether it will be able to furnish prison-made brick for road improvement. If it can, the order is placed with the state, and if not the commissioner is given a release, and must get public bids. In addition to furnishing about 3,000,000 brick for state highway improvements, prisoners at Junction City are turning out brick for the new hospital buildings at Orient, Gallipolis and other points, and the proposed new penitentiary at London. Orders ahead amount to several million brick, and while 100 men are now working at Junction City, they will only be able to fill the orders which have already been received.

W. D. Fisher and others contemplate the erection of a brickmaking plant at Canadian, Texas.

The coal trade will probably need the clayworking industry some day more than the clayworkers need fuel right now.

The U. S. Brick Co. of Tell City, Ind., is making extensive improvements which will greatly increase the capacity of the plant.

The Lock Haven Fire Brick Co., of Lock Haven, Pa., has taken over the interests of the Lock Haven Mining Co., and been incorporated with $400,000 capital stock.

The Sugar Creek Clay Products Co., of Sugar Creek, Ohio, recently purchased a tract of 119 acres near their plant, which is underlaid with a four foot vein of coal and clay.

The Newburgh Clay Products Corporation of Newburgh, N. Y., has been incorporated by H. G. Mullen, T. B. Morgan and W. H. Sweet, all of Newburgh. The company is capitalized at $50,000.

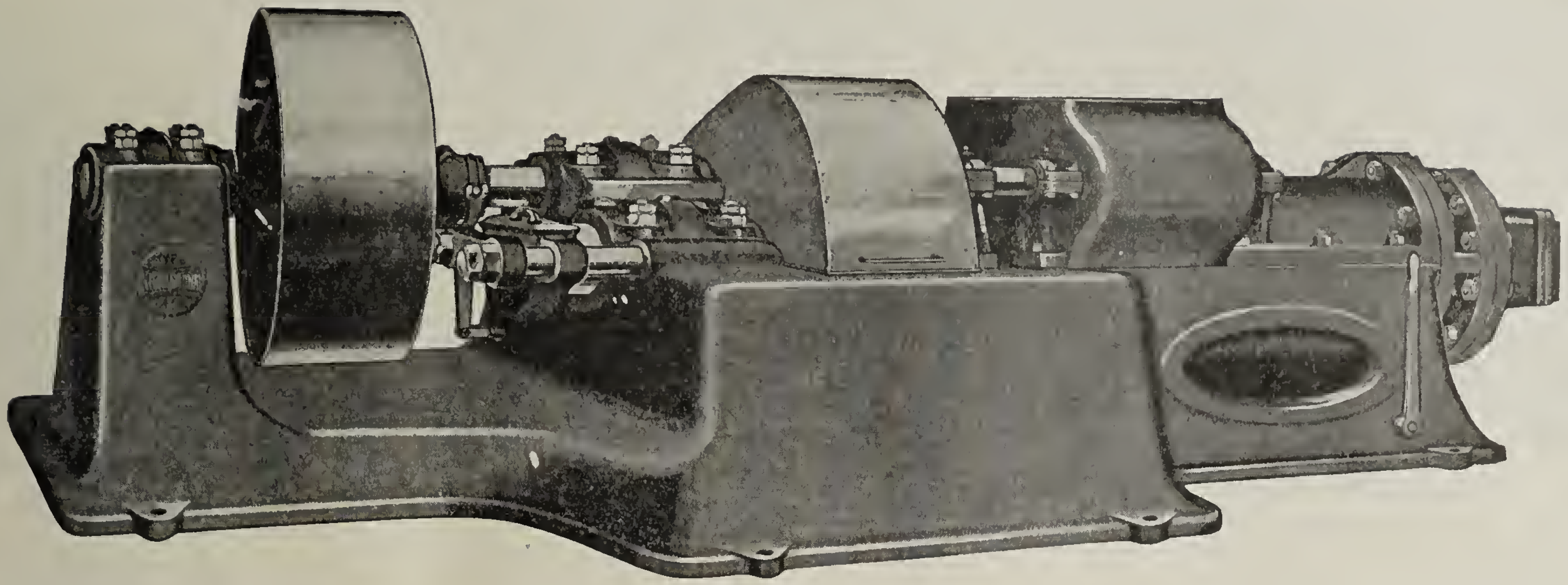
The Bostic Brick Company has been incorporated and will erect a brickmaking plant at Bostic, N. C. K. S. Tanner and R. M. Williams of Rutherfordton, and J. F. Alexander of Forest City, N. C., are interested.

The Buckeye Clay Products Company of Belle Plaine, Iowa, is running full capacity, the product being shipped to points in Iowa and Minnesota. The plant was closed all of last year and the surplus stock was all exhausted when the spring season opened.

There are no restrictions on putting up Build With Brick signs, and these should be kept doing their bit for better building, even though building operations are limited for the time being. There is a busy time to come, and the signs will help prepare the way for a bigger use of brick.

The Vesper Clay Products Co. has purchased outright the plant and business of the Vesper Brick and Tile Co., at Vesper, Ga. Murgatroyd Brothers, former owners of the plant will remain with the concern and assist in the operation of the plant. The brick made by the concern gave the Vesper clay the reputation it enjoys in the building and ceramic world. The plant has been in active operation about ten years. President G. A. Perry states that they will continue to operate the brick factory and turn out more than a million brick during the remainder of the summer. Operations will start at once erecting the new buildings for the manufacture of drain and building tile and a portion of the brick manufactured will be used for that purpose.

The 16th semi-annual meeting of the officers, traveling salesmen and other attaches of the Rutland Fire Clay Company was held in June at Hotel Bradwell, Rutland, Vt., lasting through the week. The meeting consisted of a series of conferences held at the hotel and visits to the plant in the southern part of the city, looking to increase the efficiency of the plant and the sales force and to make plans for the next six months. The roster included C. W. Moulton of Woodford, Me., George L. Pierce of Boston, A. H. Cole of Springfield, Mass., G. S. Kellogg of New York, W. A. McLean of Columbus. O., O. E. J. Vose of Saratoga, N. Y., W. S. McCormick of Trenton, N. J., George H. Wood of Boston, O. W. Griffiths of Pittsburgh, Penn., H. E. Wambold of Indianapolis, Ind., H. F. Caldwell of Rochester, N. Y., J. B. Nye of Schenectady, N. Y., H. C. Bruhl of Ridgefield Park, N. J., M. L. Beardsley of Rutland, Harold J. Murphy of Westbrook, Me., salesmen, and John W. Foley of Chicago, manager of the Chicago branch. There were also present A. W. Perkins, president of the company, C. A. Perkins, chemist, and John C. Flynn, home office manager, all of Rutland.



Type 435 For Brick or Tile

The Type of Auger Machine That Will Eventually Be Found On All Progressive Clay Plants

WHY?

ONLY TWO CASTINGS
TWO SHAFTS
TWO GEARS

International Clay Machinery Co.

DAYTON, OHO

Mention The Clay-Worker.

Written for The Clay-Worker.

PACIFIC COAST NEWS.

RECENT DEVELOPMENTS in building activities in and about San Francisco have finally resulted in decided stimulation of the clay products industries in this district. The "Build Now" slogan, promoted by the large building interests of the coast has done much to bring the property owners to the realization that the wait for a decrease in material costs will result in little or nothing for a long period. Labor costs show no indication of a decline and materials themselves have increased, particularly lumber, to a considerable extent during the last two months.

At the present time much construction work is going forward in San Francisco and numerous plans are nearing completion and will be executed soon as materials and labor are secured.

Brick and clay manufacturers report a decided increase in business and large amounts of brick and clay products are being shipped out of local factories.

An effort was made, a little more than three months ago, to stimulate building in the vicinity of San Francisco and at that time a reduction on carload prices of bricks was offered by local dealers. The price was lowered to $10 per thousand, in carload lots; but already the price has been advanced to $12.50 and there is a tendency for the price to go even higher. Pressed brick is now selling at $45 per thousand instead of the former price of $33.50.

A local paving contract was recently secured by the firm of Blanchard, Crocker & Howell, calling for fiber brick paving for Crescent avenue between the easterly lines of Andover and Prentiss streets, including the crossings of Crescent avenue at Moultrie, Anderson, Ellsworth, Gates, Folsom, Banks and Prentiss streets.

The local office of the California Pottery Company, formerly located at 12th and Otis streets, is now maintained in room 825 Chronicle building.

The erection of a six-story class A apartment building on the northwest corner of Washington and Laurel streets will include the use of a considerable amount of brick. Architect A. P. Jacobs planned the structure and has created an elaborate exterior design to be carried out in red mottled pressed brick on three elevations. The building will contain 15 apartments, 10 of which will consist of a large living room, dining room and reception hall, kitchen and butler's pantry, three bed chambers, three baths and one maid's room. The rest of the apartment will contain one less bedroom and bath. The finest quality of tiling is to be used in the baths and kitchens.

Figures are now being taken on a terra cotta office building planned by Ernest J. Kemp of Fresno, Cal., to be erected at Dimuba, Cal., at a cost of $12,000.

The kilns at the plant of the McKnight Firebrick Company of Porterville, Cal., are now completed and chrome and magnesite bricks will be manufactured immediately.

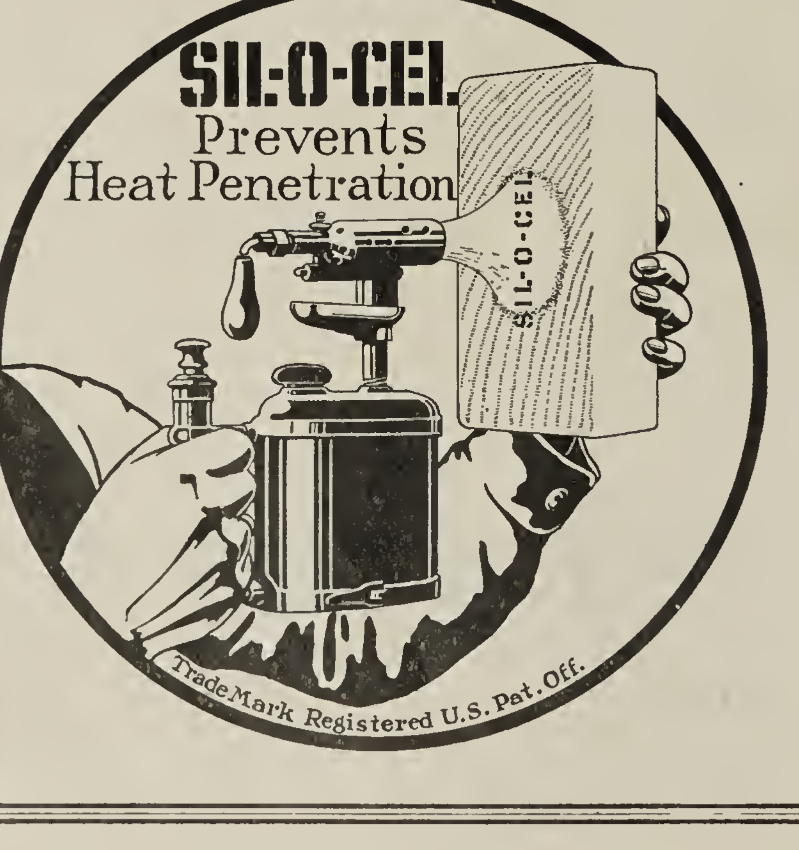
A recent incorporation in Los Angeles, Cal., was that of the MacConnell Tile Company for $25,000. Members of the corporation are Ben S. Hunter, A. R. MacConnell and Mary Twyman.

A new brick jobbing house is to be erected in Fresno, Cal. for the San Joaquin Valley branch of the United States Rubber Company at a cost of $12,000. Edward Foulkes of San Francisco is the architect.

F. A. Costello, president of the California Pottery Company, has placed H. J. Crowe in charge of a new branch in Fresno, Cal., as a lateral to headquarters at the 23rd avenue station, East Oakland, Cal. For some time Mr. Costello has seen the possibilities of representation in the valley district of the state and has added the products of several other concerns to the Fresno interests, including those of the Stockton Fire and Enamel Brick Company, the California Brick Company, of Niles, Cal., and the Livermore Firebrick Company. Offices have been opened in the Rowell building, where an exhibit of the various products is maintained. Mr. Costello is particularly enthused over recent developments in the San Joaquin valley and is of the opinion that the activities of traveling salesmen without a permanent office and distribution depot, are not at all adequate to the needs of the country. "It seems to me an absolute necessity that firms wishing to do business in Fresno and the surrounding territory, must have a permanent representative always on the job," said Mr. Costello in regard to the new branch.

The First National Bank building, of Sanger, Cal., is to have an exterior of white terra cotta with tile flooring in the interior of the structure. About $35,000 is to be spent in the construction. SUNSET.

San Francisco, Cal., July 3.



INCREASED KILN OUTPUT

Lack of temperature uniformity causes high burning losses. By insulating the crowns and walls of kilns with

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insulation, higher and more uniform temperatures can be maintained.

Sil-O-Cel possesses the qualities necessary for successful insulation of kilns, owing to its low heat conductivity. It prevents heat from penetrating the walls and crowns, distributing it at full intensity throughout the kiln.

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Some of the most economically operated kilns in the country depend on Sil-O-Cel for their efficiency.

Write for Bulletin W-5, giving complete details and illustrating the application of SIL-O-CEL Brick and Powder to kiln insulation.

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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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BUFFALO POTTERY= Plant And Product Inspected by Those Attending the Mid-Summer Meeting of the American Ceramic Society. A Delightful Outing Enjoyed by Half a Hundred Enthusiastic Craftsmen.

SHOP TALK, technical lore, and social chit chat mixed in a four day excursion made memorable the annual outing of the American Ceramic Society. Fifty or more participated in the various sight-seeing trips which proved interesting, each event in turn seeming just a little more pleasurable than those preceding so that at the final round up at the Cleveland Yacht Club the spirit of good fellowship had developed into a regular jollification.

At the Buffalo Pottery: J. L. Buckley, inventor of the "Stove Room"; W. J. Rea, General Superintendent; Frank McConnell, Chief Engineer Buffalo Pottery; W. Gibson, Chief Engineer of all Larkins Plants; Louis Bown, General Manager Buffalo Pottery.

Monday forenoon, August 4, found President Stull, Secretary Binns and the local reception committee waiting to enroll visitors and start the glad hand performance in the lobby of the Iroquois Hotel, which was the starting point and rendezvous.

The first plant visited was that of the Pierce-Arrow Motor Car and Truck Company. This great manufactory and its products, strictly high-class autos and trucks, was given the once over. Several of the visitors expressed a desire to own and operate a $7,000 machine, but no sales were announced. A number of the rank and file admitted that while they had ambitions they must for a time at least be satisfied with a

"Tin Lizzie," though if they had the price their first choice would be a Pierce-Arrow.

There was an informal dinner at the Iroquois Monday evening which some of the participants professed to enjoy particularly because of the informality and absence of set speeches.

Tuesday forenoon the party climbed into sight-seeing buses and autoed to Niagara Falls. "It's a wonderful trip," said one of the party, "the view of the river, the falls, the rapids, the whirlpool, the great steel arch bridge, and other sights of equal interest all combined to make it a wonderful trip." The first factory visited at the Falls was that of the Shredded Wheat Biscuit Company, where, after making the rounds a light lunch was served and enjoyed. The factory is so tidy, so spic and span in its cleanliness that hereafter shredded wheat will taste just a little sweeter than ever before. It was noted that the grain and other ingredients were not touched by hand. Machinery has taken the place of hand labor almost entirely. The various automatic contrivances for the work are really remarkable. It is an added reason why shredded wheat is always sweet.

Of course, Goat Island was viewed and talked about. Some one expressed regret that Ross Purdy was not present. He has been the "goat" so often that it seemed he should have been the conductor of that particular trip. He appeared the following day and made up for lost time.

The afternoon was spent in viewing the Falls from both the American and Canadian sides. The great power stations were visited and the process of generating electricity in vast quantities explained. Perhaps as yet much less than half the possible potentiality of the Falls is being utilized, though power is supplied to trolley lines, municipal needs and private consumers for hundreds of miles in all directions. It is a wonderful development that will continue to grow with the increased demand that will come with the growth of population and industrial needs.

The evening meal was served at the Clifton Hotel on the Canadian side. There was much jollity but little oratory.

The Trip Through the Buffalo Pottery.

From the clayworker's viewpoint, the most interesting plant visited was that of the Buffalo Pottery.

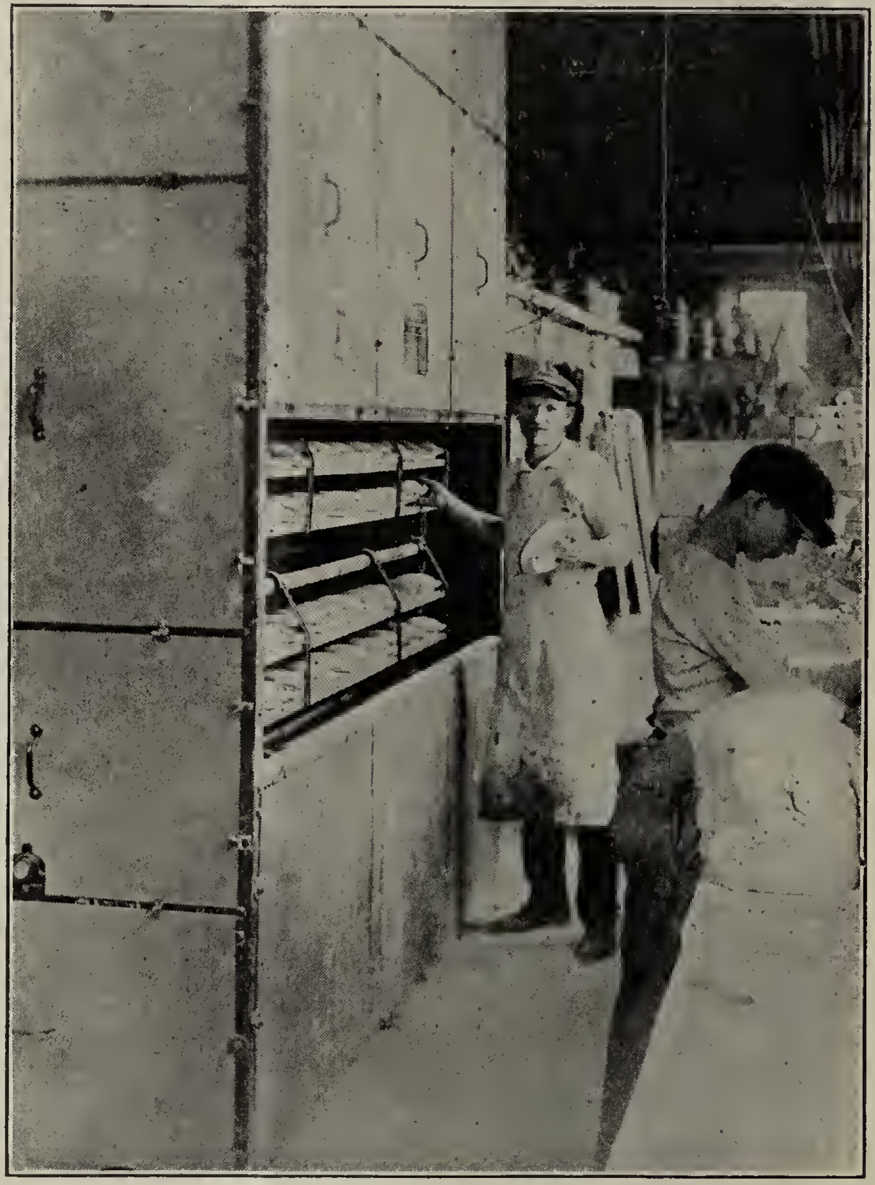
The party left the Iroquois Hotel on schedule time at 9:45 a. m., and proceeded to the corner of Washington and Swan Streets, where they boarded a car for the pottery. The car was detained for several minutes during the argument between Prof. Bleininger and Prof. Stull as to which would pay the fares.

The members arrived at the Buffalo pottery after a pleasant car ride of approximately twenty minutes, where they were met by the genial general superintendent, Mr. W. J. Rea. After sizing up the personnel of the delegation, Mr. Rea thought best to call for reinforcements, and immediately proceeded to use the automatic telephone system they have installed throughout their plant, and asked his partner, Mr. Lewis Bown, the general manager of the plant, to come and assist him in conducting the delegation through the immense pottery. They were also assisted by Mr. Wm. Bown, son of the general manager, who just recently returned from duty overseas, together with several other foremen, who took charge of the delegation in small groups and the entire workings of the pottery was fully explained.

One of the first visits was through the sagger department, where the enormous number of saggers required are made upon a new sagger press recently installed. This machine was built by the Crossley Machine Co., of Trenton, N. J., and is doing excellent work.

From here the party was conducted throughout the plant, first going through the clay shop, where they saw the dishes formed from the crude clay. A very interesting feature of the trip through this department was the inspection of the automatic hurricane stove-room which was recently installed under the direction of "Joe" Buckley, of the Philadelphia Drying Machinery Co., of Philadelphia, Pa.

The principles of the stove room, as well as the mechanical construction, were thoroughly explained to the members by Mr. J. L. Buckley, manager of the clay and porcelain department of the Philadelphia concern, who, by the way, is the inventor of the machine. It was interesting to note that this machine only requires floor space of approximately 16 ft. in length and 7 ft. wide, and Messrs. Rea and Bown were very enthusiastic over the workings of this machine, and stated that they were actually drying their ware in approximately one hour's time and without any waste at all. The accompanying illustrations give our readers an idea of the construction and operation of the "stove."


Receiving End of the Stove Room.

The trip was continued through the enormous kiln sheds where they saw the ware coming out of kilns in the biscuit form, whence they followed the procedure of manufacture into the dipping room. Here they also had the privilege of inspecting another improved method used by the Buffalo pottery which is the hurricane automatic mangle also manufactured by the Philadelphia Drying Machinery Co.

Mr. Rea explained that with the use of this mangle they greatly reduced their floor space, as well as labor, and stated that with the old method of drying the dipped ware in the ordinary stiltage rooms it required 24 hours at least and oftentimes the ware would not be dry enough to go into the kilns the following day after dipped; but with the automatic hurricane mangle they were able to dry their ware in 22 minutes after being dipped, and this was a great advantage in many ways other than the reduction of the floor space as it gives them a uniform dried product and often allowed them to rush orders through and get them into the kiln the same day they were dipped.

From this department they were conducted through the plant, where considerable time was spent in the decorating department, which proved to be of interest to all. More than ordinary interest was displayed by many members around the gold mixing table, as when it was explained that the mixture on this table was valued at $50 per ounce, there was considerable agitation on the part of several members to get a goodly portion of it as a souvenir.

From the decorating room they were conducted into the display and sample room, where the various pieces on display were explained by Mr. Bown. He stated that on account of limited production they were forced to discontinue many of the lines that they really like to manufacture, and stated that in order to keep up with the enormous demand for the Buffalo product they really should be operating four plants.

Delivery End of the Stove Room.

Messrs. Rea and Bown have shown themselves to be among the most progressive potters of the country, as they are sparing no expense in installing the most modern equipment in their plant, and stated that they now have orders placed for additional hurricane drying machinery which will soon be installed.

The main product of the pottery is hotel china, which is made on special order with any desired decoration. The specialty of which they are very proud is their Blue Willow ware, which is very popular and justly so. It is a semi-porcelain with under glaze colors perfected to a high degree. The Buffalo Pottery claims to be the first American pottery to successfully produce this class of ware, the motif of which dates back to ancient Chinese products. We give the legend of the original Blue Willow ware, which is quite interesting—rather romantic for a trade publication, but our readers will enjoy it all the more perhaps on that account.

LEGEND OF THE BLUE WILLOW WARE.

Once upon a time there was a rich old Mandarin, who had an only daughter named Li-Chi. She and her father lived in a beautiful home, two stories in height, a rare thing in China.

If you look at a Willow-pattern plate, you will see that not only is the house a two-storied one, but there are out-buildings (to the right) at the back, and large trees, of a rare and costly kind, surrounding it, showing that the owner was a man of great wealth.

Li-Chi was a very pretty girl, and as her father was a rich man, she always dressed in the softest, brightest silks money could buy.

Her favorite dresses were of peach-colored silk, embroidered with silver, and if you could have seen her sitting on her balcony, on a moonlight night, with ffowers entwined in her hair, and the shimmering peach-colored silk falling in soft folds about her feet, you would have thought her worthy to marry a prince. But Li-Chi did not want to marry a prince. She had fallen in love with Chang, her father's secretary, who lived in the island cottage you will find at the top of the plate.

The Mandarin was very angry about this, and had forbidden the young man to come to the house, at the same time forbidding Li-Chi to leave it, so that the lovers might have no chance of meeting. He went still further—he betrothed his daughter to a Ta-jin, or Duke, who was rich, but many years older than Li-Chi. Li-Chi had never seen the Ta-jin, but her father came to her one evening, as she was sitting on her balcony, which overhung the river and told her he had made arrangements for her marriage.

"Oh, no! no!" sobbed Li-Chi. "I love Chang! I can not marry anyone else."

"Chang shall never be your husband," replied the Mandarin sternly. "I have promised the Ta-jin that you shall be married to him when the peach tree blossoms."

The willow tree was in blossom then, for it was quite early in the year.

The peach would not bloom until the spring; but every day after this Li-Chi watched the buds of the peach tree, which grew close to her window, unfolding, and she watched them with dread and sorrow in her heart. "Is Chang dead? or has he forgotten all about me?" She wondered to herself.

But Chang was not dead, neither had he forgotten; he thought of her night and day, and at last one evening he sent her a message.

She was sitting on her balcony as usual, when a little boat made out of half a cocoanut shell, and fitted with a tiny sail floated right to her feet.

Inside it she found a colored bead she had given her lover, a sure proof that the boat came from Chang; and also a piece of bamboo paper, on which these words were written:

"When the willow fades away,
And the peach tree groweth gay
Tell me, sweetheart, can it be
They will steal my love from me?"

Li-Chi took her ivory tablets from the bosom of her dress and wrote an answer to his letter in the same strain:

"When the peach tree blooms, sweetheart,
Thou and I must weep and part.
Hasten then take the prize
Ere 'tis seen by robber's eyes."

She knew that her lover would understand this flowery language, and she put the tablets in the boat, and lighted a stick of frankincense and placed it in the bow.

And leaning over the balcony, she watched it sail away into the darkness of the night.

"He will come for me before my wedding day," she said softly to herself.

The night air was full of the scent of flowers, and everything was still. Li-Chi half imagined she could hear the blossoms on the willow tree sighing faintly, and saying, "It will be too late—we are dying!"

For Chang had promised the last time they met, that he would come for her while the willow was still in blossom.

And she thought she heard the buds on the peach tree replying: "We are nearly ready to open. Then she will marry the Ta-jin!"

Chang, on the farther bank of the river, waited to draw his frail little bark to land, and when he read the verse on the ivory tablets, his smile went up to the corners of his eyes, as Chinese smiles generally do; and he walked into the gardener's cottage where he was stopping, and called the gardener and his wife.

"Do you know when the Ta-jin is coming?" he said.

"The betrothal-feast is fixed for next Thursday, for the moon will then be lucky," replied the old man.

"The Mandarin has ordered his gardeners to take six dozen carp out of the fish ponds, and there are to be golden and silver pheasants on the table, and boar's head and roast peacock."

"And six casks of wine to be broached," continued his wife. "And as many oysters as his guests can eat."

"The servants say that the Ta-jin is bringing his bride such a casket of jewels as never was seen," said the gardener. "A necklace of pearls—each pearl as big as a sparrow's egg—"

"Pigeon's egg, stupid!" interrupted the wife.

"Sparrow's egg, imbecile!" he retorted.

"Pigeon's egg, idiot!" repeated the old woman angrily.

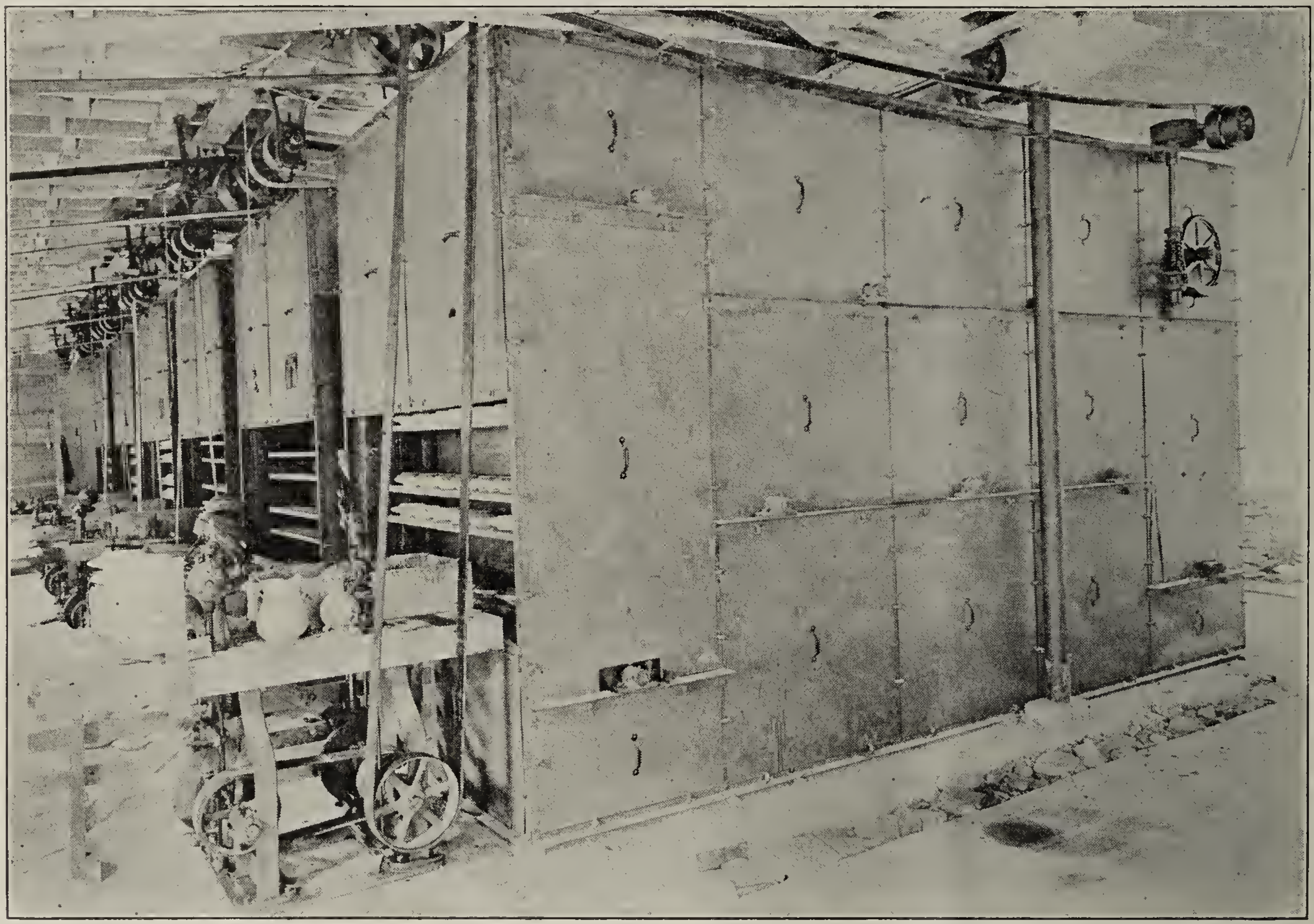
"It doesn't matter which," Chang broke in. "What I want to know is whether you could borrow me one of the servant's dresses and smuggle me into the banqueting room that night?"

"It is impossible," replied the gardener, shaking his head.

The old couple knew all about Chang's love story, but they were afraid of helping him. Neither of them dared to risk the displeasure of such a rich and powerful Mandarin as Li-Chi's father.

The next few days passed in preparation for the betrothal feast.

Servants were running hither and thither all the time; the Mandarin never stopped giving orders from morning till night; the banqueting-hall was swept and strewn with sweet-scented leaves and the walls and roof hung with colored-silk lanterns and fans.



An Installation of Six Stove Room, Showing Feed End, Buffalo Pottery.

Every one was happy and busy except Li-Chi, who sat on her balcony, with her embroidery lying idle on her lap, and her eyes gazing wistfully across the river which separated her from her lover.

On the morning of the betrothal-feast the peach tree was covered with lovely pink blossoms, while the willow blossoms hung faded and drooping on the tree.

This made Li-Chi so sad she could not stay on the balcony; she went into her room and sat on a couch, with her head resting on her hands, watching her attendants as they spread out on the floor the rich silk dresses the Ta-jin had sent as a present to his bride.

They were all the colors of the rainbow, pale blue, and pink, and yellow, and purple, embroidered in gold and silver, and one of them was peach-colored silk, embroidered with pearls.

"This is just the dress for a bride," said the woman. But

Li-Chi shook her head. "I will not wear peach-color any more," she said.

At noon the Ta-jin sent her by his servant the box of jewels of which the gardener and his wife had spoken. There were diamonds and rubies in it of such size that the Emperor himself would not have despised them. And the necklace of pearls went twice around Li-Chi's neck, and nearly to her waist.

At last her attendants persuaded her to allow them to dress her for her betrothal and they chose a beautiful blue-silk dress, embroidered all over with golden butterflies; because in China butterflies are looked upon as a symbol of married happiness. And they fastened the pearls around her throat, and put some shining jewels in her hair.

"For she is going to be a great lady—the wife of a duke," they said. "Flowers in the hair are only for common people."

"Now leave me quite alone," commanded Li-Chi, when they had finished.

She was tired of all their foolish talk about the Ta-jin, and wanted to step out once more and see if the willow-blossoms were quite faded, and if there was no message from Chang sailing to her across the water.

The women went away, but came back in a moment to tell her that one of the servants wished to speak to her.

"Let him come in," said Li-Chi impatiently. The young man who entered wore a long blue-cotton robe, and a broad straw-hat which half concealed his face, but as soon as they were alone he took off the hat, making her a low, sweeping bow, and Li-Chi saw that it was Chang himself. For a moment she could not believe it, but when he took her in his arms, and kissed her, crumpling up all the golden butterflies in his eagerness, she knew it was really her lover, who had come to save her from marrying the Ta-jin.

"How did you get here?" she asked, sobbing with joy.

"I disguised myself as a beggar," said Chang, showing her the rags he wore under his blue robe. "But when I came to the banqueting room, to ask for alms, everyone was too busy to listen to me. So I managed to slip behind the screen they had spread across the lower end of it and find my way out to your room."

"And this?" said Li-Chi, touching his servant's dress. dress.

"One of the servants happened to have left it behind the screen. And now, Li-Chi, how can I disguise you? For we must pass behind the screen again, and through the banqueting room door into the garden, and across the bridge to the gardener's cottage."

He looked quickly around the room, and found a garment belonging to Li-Chi's old nurse, which covered all her bridal finery, except her pretty little gold-embroidered shoes.

"Never mind my shoes," she said, "I shall run so fast no one will see them."

She took her staff in her hand, because she did not want to be an idle, useless wife to Chang, and she gave him the box of jewels to carry.

I do not think they ought to have taken the jewels, although the Ta-jin had given them to Li-Chi; but perhaps Chang did not know what was in the box, and he was in too great a hurry to ask.

"The willow-blossoms droop upon the bough, my darling! We must delay no longer," he said.

And, indeed, as the lovers crept behind the screen a light breeze shook the last blossom of the willow to the ground.

"If my father should see us!" whispered Li-Chi, holding her lover's hand very tightly.

"Don't be afraid," said Chang. "I have prayed to the good Genii not to let him catch us. If he comes near they will change us into two stars, shining together; or, perhaps, two turtle doves. You would not mind that would you?"

"I do not mind anything, except parting from you," replied Li-Chi.

They reached the garden in safety, and Chang led his sweetheart towards the bridge.

But Li-Chi's pretty little shoes would not allow her to run very fast, after all, and when they got to the foot of the bridge, the Mandarin came rushing down the garden path, with whip in his hand.

"Stop! stop!" he cried furiously. "Will no one stop the thief who has stolen my daughter?"

Chang put Li-Chi in front of him, and she ran across the bridge first, with her distaff, while he followed her with the casket of jewels. Behind them came the Mandarin, brandishing his whip.

But the good Genii, who were watching over the lovers, saw that the Mandarin gained quickly on Chang, and there was no chance of their escaping.

"He will flog Chang to death, and shut Li-Chi up for the rest of her life. What shall we do?" they asked each other.

Then the Genii said, "Let us change them into two turtle doves, that they may be happy together after all."

Just as the Madarin, therefore, put his hand out to seize the young man by the shoulder, the box of jewels fell splash! splash! into the water, and Chang and Li-Chi were changed into two beautiful doves. They at once flew away, out of the Mandarin's reach, and he was left with whip in his hand, and the Ta-jin's jewels at the bottom of the river.

The story does not tell us any more about him—how he got home, or what the Ta-jin said to him when he arrived.

It only tells us that Chang and Li-Chi were as happy as two turtle doves could be.

And the next time you come across a willow-pattern plate, you must look for them, hovering in the air above the bridge.

On the bridge itself you will see three figures, Li-Chi with her distaff, Chang with the jewels, and the Mandarin with his whip.

At one end is the famous willow tree which shed its blossoms the day of the elopment; at the other is the gardener's cottage; and at the top of the plate an island, with another cottage on it, in which Chang had hoped to live with Li-Chi.

But instead of that they built a cosy nest in the garden, from which they could watch the willow and the peach tree bloom and fade without any fear of being parted from each other.

At the Great Larkin's Establishment.

From the pottery the party proceeded to the factory of the Larkins Company, which contains over seventy-five acres of floor space, and is equipped with every modern convenience for the production and handling of the various products which embraces more than 500 articles that are supplied to the homes and offices of a million patrons. Arriving at the noon hour the visitors were treated to a very substantial lunch served in the auditorium of the Adminstration building. While lunch was being served an interesting moving picture show was staged, illustrating the convenience and economy of buying home necessities by the Larkins method. Lunch and picture show over, Mr. Larkins, the founder of the great enterprise, a fine, patriarchal appearing old gentleman, was introduced and after felicitations the party was escorted by Mr. Larkins junior, one of the managers, through the plant which is a marvel of mechanical perfection, and orderly management, employing fifteen hundred men and women who were noticeably neat in attire and interested in their work and contented with their environment.

The Larkins plant started in 1875 as a soap factory. At that time, it occupied a two-story brick building 25x60 feet square. Mr. Larkins conceived the idea of dealing in premiums and has achieved a success that has given the firm a nation wide fame.

Each visitor was presented with a soap souvenir and a booklet giving the story shown on the screen, and illustrating and describing each department of the factory, which is very interesting. A copy will be mailed free to any of our readers desiring it. Just drop a post card to the Larkins Co., Buffalo, N. Y. We predict the next time any of the visitors purchase soap or other toilet articles they will ask for Larkins —for they had ocular demonstration that Larkins products are high grade and modest in cost. The Larkins food products include macaroni, noodles, peanut butter, baking powder, cocoa, spices of all sorts, and prepared mustard. Also paints and varnishes, all manner of toilet articles and perfumes, all of which are prepared and packed ready to be handed to the consumer by the "Larkins Factory-to-Family Plan."

Wednesday evening at 9 o'clock, the party went aboard the good old boat City of Buffalo and had a fine night trip to Cleveland. The stories told on deck would make a large and amusing volume. After breakfast at the Cleveland Hotel, the late arrivals were given an opportunity to register and under the direction of R. D. Landrum, O. C. McCormick and Will P. Blair, and other local committeemen, proceeded in autos to the enameling plants and to the National Lamp Company. After lunch at the Cleveland Hotel, the visitors were given the great treat of the occasion. "The last, the best of all the game" was true, for the drive to the Yacht Club was itself a treat and the Club proved a delightful haven of rest and recreation. Naturally, aquatic sports are the proper caper at the Yacht Club and they were thoroughly enjoyed A number of lads and lassies gave impromptu exhibitions of diving and swimming. True to form, Ross Purdy appeared in a bathing suit and gave the onlookers a treat. He was much envied by those not lucky enough to obtain the necessary bathing suit.

In the evening a fine dinner was served at the Club with the compliments of the local entertainment committee. It was a happy ending of a most enjoyable meeting, and special mention is due Chairman R. D. Landrum and his chief lieutenants Frost, McCormick and Blair.

THOSE IN ATTENDANCE.

R. E. ANDERSON, Norton Co., Worcester, Mass.
D. H. APPLEGATE, Phila. Textile Mach. Co., Philadelphia, Pa.
M. G. BABCOCK, Mellon Institute, Pittsburgh, Pa.
GEORGE BARLOW, East Liverpool, O.
M. F. BEECHER, Norton Co., Worcester, Mass.
CHAS. F. BINNS, N. Y. State School of Ceramics, Alfred, N. Y.
MISS NORAH W. BINNS, Alfred, N. Y.
W. E. BLACKBURN, Buffalo, N. Y.
WILL P. BLAIR, N. P. B. M. A., Cleveland, O.
A. V. BLEININGER, Bureau of Standards, Pittsburgh, Pa.
J. A. BOLE, N. Y. State School of Ceramics, Alfred, N. Y.
ROSEMARY BOLE, Alfred, N. Y.
O. O. BOWMAN, J. L. Mott Co., Trenton, N. J.
LESLIE BROWN, Lennox Inc., Trenton, N. J.
J. L. BUCKLEY, Phila. Drying Machine Co., Philadelphia, Pa.
F. CARDER, Corning, N. Y.
W. H. CLAYTON, Lennox Inc., Trenton, N. J.
HOWARD T. DARLINGTON, Natrona, Pa.
ED. DITHERAGE, J. L. Mott Co., Trenton, N. J.
MRS. CONRAD DRESSLER, New York, N. Y.
CONRAD DRESSLER, Am. Dressler Tunnel Kilns, New York, N. Y.
PHILLIP DRESSLER, New York, N. Y.
H. W. FENTON, Mogadore, O.
H. FORESTER, Veritas Firing System, Cleveland, O.
R. L. FRINK, Frink Pyrometer Co., Lancaster, O.
F. J. FROST, Enamel Products Co., Cleveland, O.
C. F. GEIGER, Carborundum Co., Niagara Falls, N. Y.
M. F. GIBSON, National Fire Proofing Co., Toronto, Ont.
W. H. GRANT, Elk Fire Brick Co., St. Marys, Pa.
M. C. GREGORY, Brick, Terra Cotta & Tile Co., Corning, N. Y.
M. B. GREENOUGH, N. P. B. M. A., Cleveland, O.
GEORGE HAAF, Pass & Saymore, Inc., Solvay, N. Y.
DONALD HAGER, Jeffery-Dewitt Co., Detroit, Mich.
FRED HAMPEN, Findlay Clay Pot Co., Washington, Pa.
J. L. HARPER, Niagara Falls, N. Y.
F. A. HARVEY, Semet-Solvay Co., Syracuse, N. Y.
J. W. HASBURG, J. W. Hasburg Co., Chicago, Ill.
J. C. HASTETTER, Corning, N. Y.
ELZA F. HEISTAND, Gill Clay Pot Co., Muncie, Ind.
WM. H. HIESS, Sheboygan, Wis.
G. K. HERZOG, Cleveland, O.
H. W. HESS, Toledo, O.
ADOLPH F. HOTTINGER, Northw. Terra Cotta Co., Chicago, Ill.
RAYMOND M. HOWE, Mellon Institute, Pittsburgh, Pa.
FRANK S. HUNT, Beaver Falls Art Tile Co., Beaver Falls, Pa.
G. ISAKA, Asahi Glass Co., Tokio, Japan.
E. C. KETTINGER, Reading, Pa.
F. A. KIRKPATRICK, Bureau of Standards, Pittsburgh, Pa.
A. A. KLEIN, Norton Co., Worcester, Mass.
A. F. KORMAN, Kohler Co., Kohler, Wis.
W. S. KUGLER, Am. Dressler Tunnel Kilns, New York, N. Y.
R. G. LANDRUM, Harshaw-Fuller-Goodwin, Cleveland, O.
F. W. LAPP, Leroy, N. Y.
S. C. LINDBARGER, Carborundum Co., Niagara Falls, N. Y.
F. G. LORD, Pennsylvania Pulverizing Co., Lewiston, Pa.
C. A. LORMAN, Rochester, N. Y.
J. McCLARE, Cleveland, O.
J. S. McDOWELL, Harbison-Walker Refrac. Co., Pittsburgh, Pa.
T. G. McDOUGAL, Champion Ignition Co., Flint, Mich.
FRED McDOUGAL, Champion Ignition Co., Flint, Mich.
H. E. MADDOCK, J. Maddock & Sons, Trenton, N. J.
A. L. MACY, Beaver Falls, Pa.
H. MILLER, Sheboygan, Wis.
R. H. MINTON, General Ceramics Co., Metuchen, N. J.
C. NICK MUSSIG, B. F. Drakenfeld & Co., East Liverpool, O.
A. B. PAYNE, Hazel Atlas Glass Works, Washington, Pa.
F. K. PENCE, Zanesville, O.
E. H. PERROT, Beaver Falls, Pa.
ROSS C. PURDY, Worcester, Mass.
C. C. RAND, Cleveland, O.
T. A. RANDALL, The Clay-Worker, Indianapolis, Ind.
DONALD W. ROSS, Findlay Clay Pot Co., Washington, Pa.
FRED SAUERENSEN, National Lock Co., Rockford, Ill.
H. SCHMIDT, Roessler & Hasslacher Co., New York City, N. Y.
DONALD E. SHARP, Spencer Lens Co., Buffalo, N. Y.
J. B. SHAW, N. Y. State School of Ceramics, Alfred, N. Y.
WM. H. SHERMAN, New Jersey Zinc Co., New York, N. Y.
R. R. SHIVELY, Fairmont, Neb.
H. DAN SMITH, Smith-Phillips Co., East Liverpool, O.
HOMER F. STALEY, Bureau of Standards, Washington, D. C.
R. W. STEERE, Am. Dressler Tunnel Kilns, New York, N. Y.
F. L. STEINHOFF, Brick & Clay Record, Chicago, Ill.
R. T. STULL, Bureau of Mines, Columbus, O.
V. C. THORMAN, Rochester, N. Y.
C. TRESISCHEL, General Electric Co., Schenectady, N. Y.
A. J. WALCOTT, Bausch-Lomb Co., Rochester, N. Y.
A. S. WALDEN, National Carbon Co., Cleveland, O.
F. W. WALKER, Beaver Falls Art Tile Co., Beaver Falls, Pa.
P. H. WALKER, Carborundum Co., Niagara Falls, N. Y.
H. G. WILLETTS, The Willetts Co., Pittsburgh, Pa.
HERMAN WORSHAM, Carrier Engineering Co., Buffalo, N. Y.
J. W. WRIGHT, Macbeth Evans Co., Pittsburgh, Pa.
A. ZAKAROFF, Martins Co., New York, N. Y.

BRITISH BRICK CONSTRUCTION.

Consular reports from Nottingham, England, state that a syndicate has been formed by some of the largest brick manufacturers of the Nottingham district, and two of the most important works near Petersborough, Lincolnshire, have been purchased. The syndicate is to control at the start between fifty and sixty million brick production a year. It is also stated that one of the yards acquired has specialized in the manufacture of a high-grade engineering brick, which has largely been used by the British Admiralty. The name of the new combination is not given, but the report indicates a tendency in England toward consolidation of clayworking industries into strong organization.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XL.

Zig-Zag Kiln.

THE zig-zag kiln is merely a rearrangement of the ring kiln, giving greater compactness. Such a kiln is illustrated in Fig. 140. There are several modifications of this type of kiln both in the arrangement of the several pseudo chambers, and in the floor and draft exits. In some the plan is simply a single battery with an underground return flue.

This has the advantage that the ware enters on one side and is removed from the opposite side.

In other plans the battery of compartments is single but the return flue is above ground and has the same cross section as the other compartments, in other words a longitudinal compartment connects the ends of the battery of compartments making the operation of the kiln fully continuous.

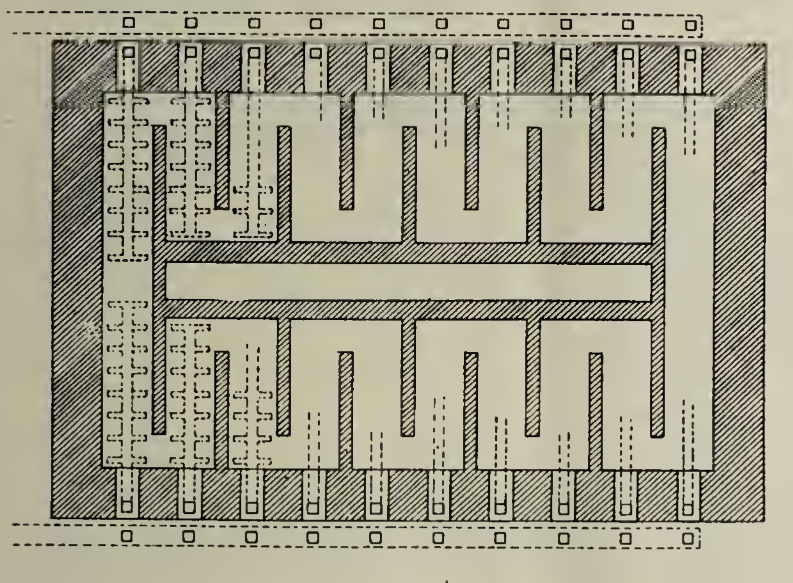


Fig. 140.

Others are the double battery type shown in the illustration.

The kiln never found favor in this country, so far as we know, and a detailed description of any of the types would not interest American clay workers. It seems strange that the Zig-zag kiln with its greater compactness and lower radiation loss has not found some acceptance in this country.

Compartment Kilns.

The compartment kiln is in a measure a development of the tunnel kiln. The earlier types of tunnel kilns were direct coal fired and the burning fuel came in contact with the ware. This would not be objectionable for a number of common wares, but for other wares it was essential that the fuel be burned in a separate compartment.

The simplest and earliest effort to separate the high-grade ware from the fuel was to build the trace and vertical firing flues of common bricks and to fill the space between with the higher grade ware, but this involved the manufacture of two or more kinds of ware simultaneously, complicated the setting and increased the labor cost.

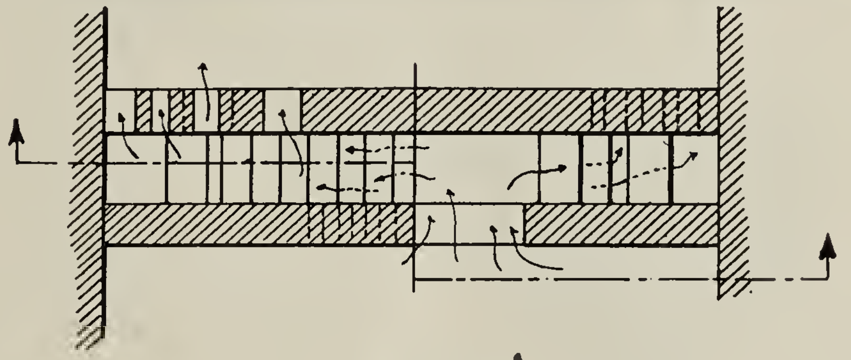


Fig. 141.

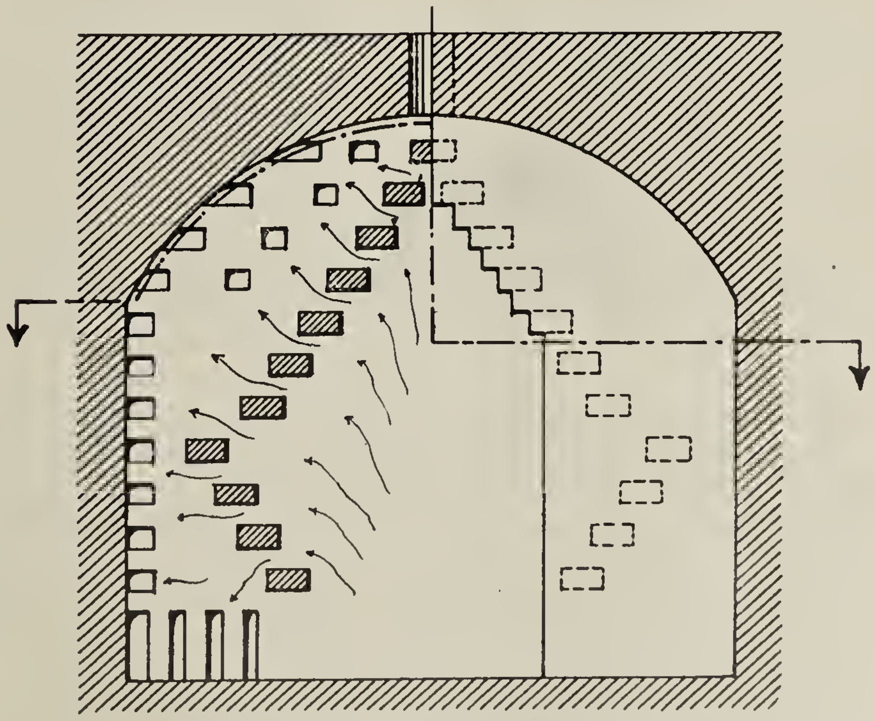


Fig. 142.

The first step toward a compartment kiln was to introduce, in the ring kiln, division walls at intervals, the walls being double and space between. In this space were placed so-called step grates upon which the fuel collected and openings in the division walls provided for the admission of air on one side and the exit of the gases on the other.

Fig. 141, view plan below the crown, and Fig. 148, elevation, illustrate such a division wall firing pocket.

In a modern American ring kiln, drop or apron arches are introduced in the tunnel crown at suitable compartment intervals. The green bricks are set in front of the aprons to form a solid wall except openings through the base corresponding to trace flues. This green brick wall is virtually a division wall. The bricks may shrink and the wall settle to the depth of the deep arch without opening a direct passage from compartment to compartment. Back of each apron wall are slots in the kiln side walls and in line with these and inserted into them is a second solid green brick wall across the tunnel but dropping off below the kiln crown. This second wall is built of bricks set herring bone fashion so that under fire shrinkage the bricks will settle together and maintain a relatively tight wall. The extension of this wall into the side wall slots prevents any openings around the ends of the walls. This second wall diverts the gases from the trace flues to the kiln crown, and the initial wall brings them back to the trace flues in the next compartment. The firing is with producer gas introduced through a series of ports a short distance back of the deflecting division wall.

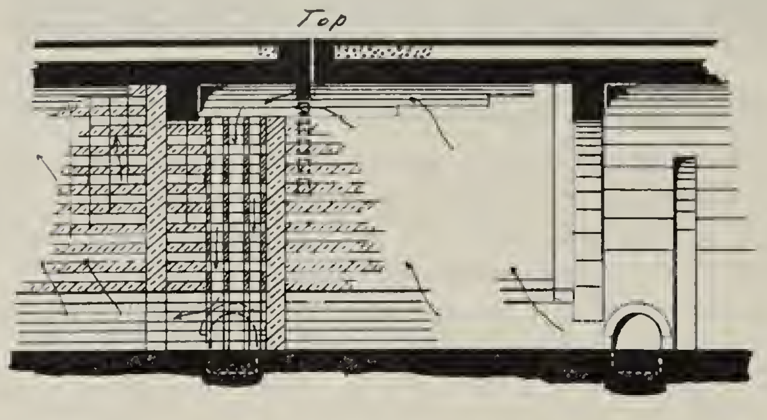


Fig. 143.

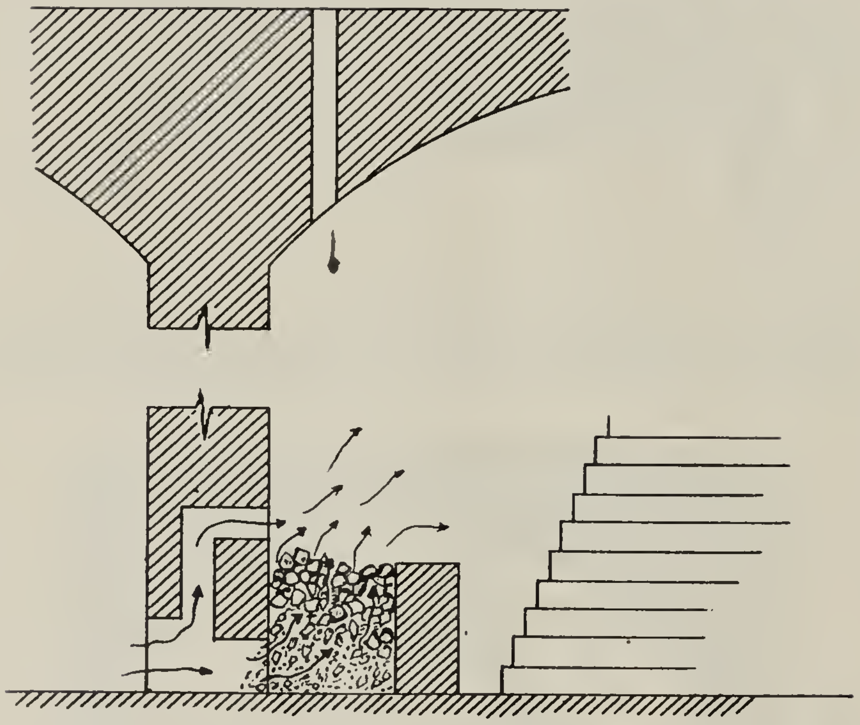


Fig. 144.

Fig. 143, longitudinal section, illustrates the above described division of a ring kiln into compartments.

An English kiln introduced into this country divided the tunnel into a series of compartments by permanent division walls. Each division wall was perforated at the base by a number of ports thus connecting the compartments.

In front of each division wall; that is, on the firing side, was placed a low box to receive the fuel. A section through one port in the base of the division wall is shown in Fig. 144.

The hot air from the rear cooling compartment is split as it passes through the division wall ports. Part of it enters the fuel box at the floor level and is drawn up through the fuel thus giving the primary combustion. The second portion enters above the fuel box and combines with the products of primary combustion. The operation is that of a gas producer and it may be said, that, crude and simple as it was, little fault could be found with this feature of the kiln. In a subsequent construction, the division walls became the support of the compartment arches, following the usual construction of a compartment kiln.

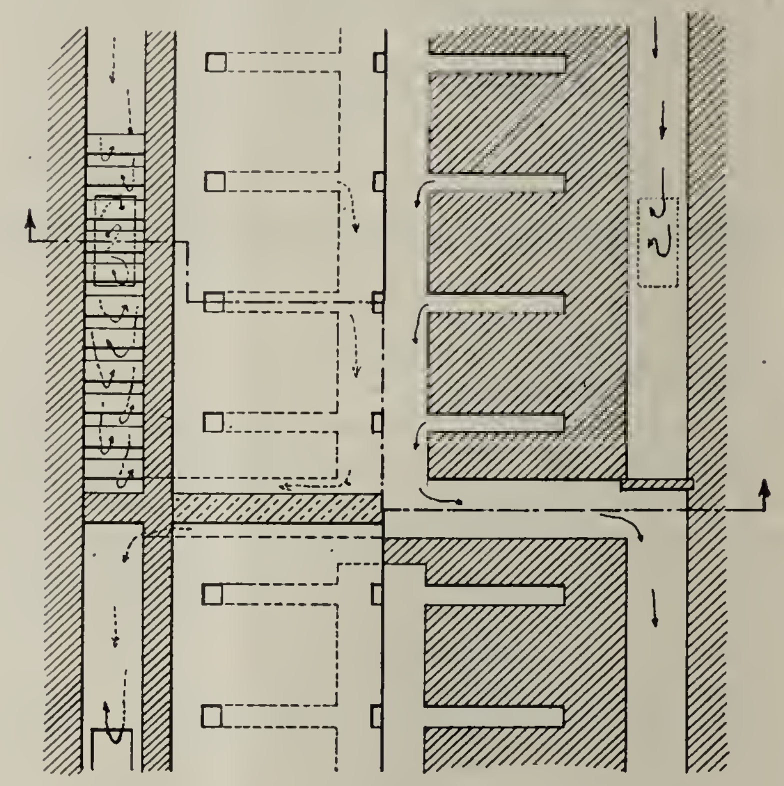


Fig. 145.

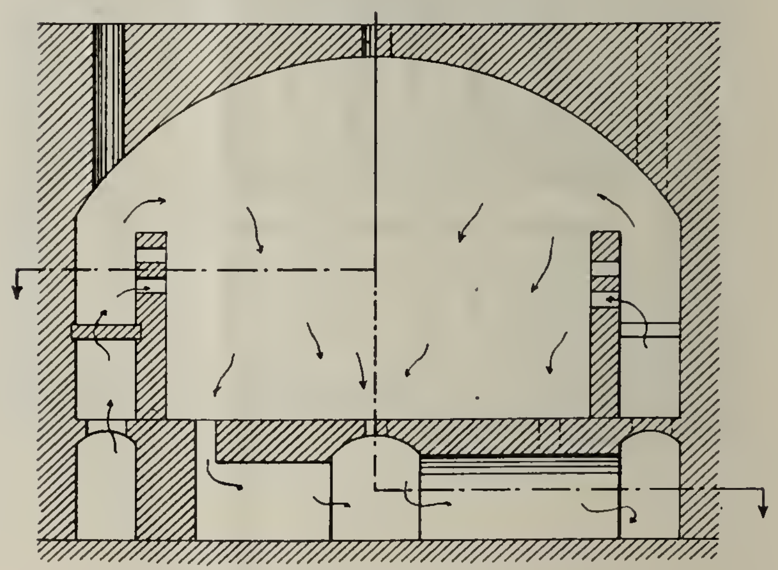


Fig. 146.

Another (German) method of combustion apart from the ware is shown in Fig. 145, a view above the floor on the left, and similarly below the floor on the right, and Fig. 146, a vertical section. Here we have side firing spaces with firing plates to receive the fuel, similar to the step grates, with the hot air entering from below. The use of step grates is common practice in Germany, if we may judge from the literature, while in this country they have not proven successful.

A German counterpart of the English kiln (Fig. 144- is illustrated in Fig. 147 and Fig. 148. It was necessary to use lump coal in the English kiln whereas in the German kiln with the step grates, powdered, or at least fine coal is essential, and a further essential is that the coal should be easily inflammable and highly gaseous. Brown coal, lignite, and similar volatile and gaseous fuels are especially adapted to the step grate combustion furnaces. This is probably one reason why the step grates in any application have not found favor in this country.

In the German kiln above illustrated the coal is dropped through feed holes in the kiln crown and collects on the fire clay plates. Hot air from cooling compartments in the rear enters the burning compartment through the ports in the division wall above and below the plates holding the fuel. The hot air from below heats the plates, gasifies the coal, and finally unites with the residual carbon in its passage over the top of the plates.

The secondary hot air from the upper ports completes the combustion. The operation is crude but the final results are perfect in so far as complete combustion is concerned.

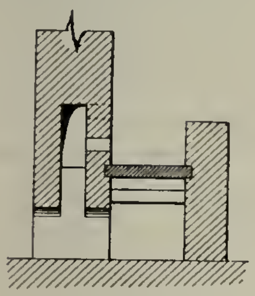


Fig. 147.

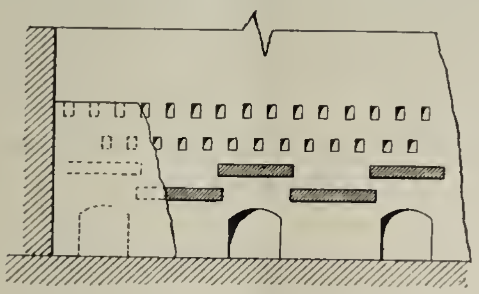


Fig. 148.

The step grate principle in other kilns is further carried out by increasing the height of the fire wall and putting in a series of step grates as shown in Fig. 142 and Fig. 147.

The next advance is the double fired step grate kiln shown in Fig. 149. The arrows show the movement of the air under the floor, to the fire bags, thence up around the step grates, over into the kiln, and down through the ware and kiln floor, repeating the operation in the succeeding compartments until the draft outlet is reached. Any clayworker will understand that the distributing air flues in any compartment, one of which is shown in the illustraton, alternate with perforated floor flues leading into the under main draft flue, thence forward into the distributing flues in the next compartment. The collecting flue in one compartment becomes the distributing flue in the next compartment.

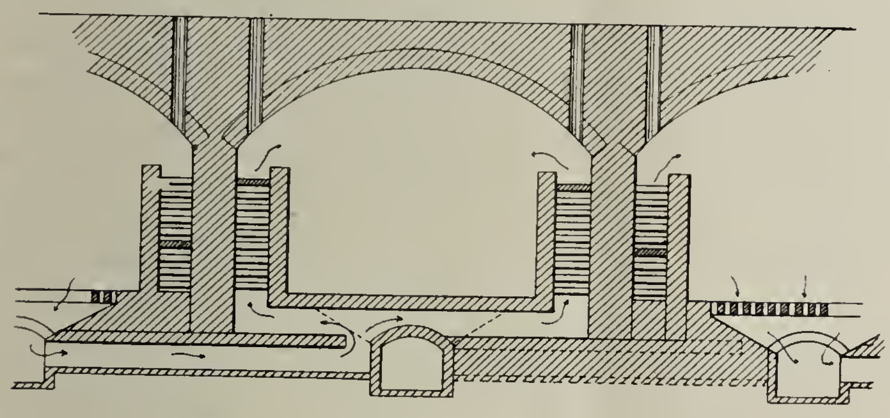


Fig. 149.

The same principle of collection and distribution of the air and combustion gases is used in later produced gas double fired kilns with marked success.

(To be Continued).

The cement folks have seen a light coming from the high price of lumber and are already on the job distributing booklets among retail lumber dealers and others suggesting that the home should be built of concrete blocks, illustrated with a series of pictures of such houses.

NOTES FROM DIXIE LAND.

BRICK, CLAY AND TERRA cotta interests continue very active in the South. The sharp development mentioned in July has been considerably augmented as the summer passes. This applies on building work, operation at kilns and on large sewerage and drainage and road building enterprises in the Mississippi Valley. Labor is still a little scarce but a better understanding obtains. So far the railroad situation is not serious but more favorable.

Actual work has started the last few days on still a third theater project at 48 South Main street, Memphis. This is the Pantages Circuit out of Seattle, Wash. The building formerly occupied by Van Vleet Mansfield on Main street is being demolished in part to permit of the erection by January 1, of a modern play house to seat about 2,500. John O. Owsley, of Seattle, will be the superintendent of the building project.

Purchase of the South Memphis Brick Co. by a Memphis syndicate and its enlargement to a capacity of 100,000,000 brick per year is announced here. The new firm is known as the Herbert-Fischer Brick Co. The capitalization is $150,000. T. L. Herbert is president, W. W. Fischer is vice-president and B. A. Bogy is secretary and treasurer. B. L. Mallory and W. C. Early are also stockholders in the new firm. Enlargement of the plant will begin with the arrival of new machinery. Ordinary brick and facing brick will be manufactured. Clay for this purpose is available near Memphis. New presses, dryers and kilns will be installed and the present capacity of 30,000,000 more than trebled. When the new additions are completed some 600 men will be employed.

The executive committee of the Jewish Club has purchased near Memphis 125 acres, part of the Geo. C. Bennett tract of land fourteen miles out on the Poplar avenue turnpike and will erect a club house.

Thompson Bros., wholesale cigar merchants, Memphis, have let the contract for a new building 40x80, two-stories high on West Huling street, to Jas. Alexander Construction Co. of Memphis. Plans by Architects Jones and Furbringer.

At Brownsville, Tenn., Emil Tamm Sons are remodeling and installing a new brick and plate glass front in their two-story general merchandise store, corner of East Main street and the Public Square.

A. O. Mann, at Brownsville, Tenn., will erect a modern brick residence at the corner of East College and Park avenues, on a lot just acquired.

The Bank of McKenzie, at McKenzie, Tenn., is remodeling their building on Broadway from the ground up, making it modern in every way, brick with stone trimmings.

Mrs. C. J. Cocke will erect at Union avenue and McLean boulevard, Memphis, a new brick apartment house to cost $40,000. The plans for the building were drawn by Architect Chas. Deas and the contract awarded to B. W. Cocke.

Greenville, Miss., is to have a new brick and steel theater, Peoples Theater Co., builders; J. Rice Scott, architect.

Bids are being taken on a new court house at Blytheville, Ark.

DIXIE.

DESPISE NOT THE LITTLE THINGS.

There are some interesting items in one of the clay industry reports that show how little things may grow into big totals. There were door knobs ranging in annual value from $43,275 to $86,064; toy marbles to a total of nearly half a million dollars in one year, and cooking ware of clay which is climbing up toward the half million dollar mark in yearly production.

BUTTON HOLE TALKS.

WHEN I FIRST SAW HIM, I took him for a disinterested spectator looking at quite an elaborate building on which we were at work. Later on I found that he was the owner of the building. He was most unassuming. Exceptionally quiet if let alone, however, if properly interested, he had a wonderful way of summing things up. He could, as did Lincoln, illustrate by a story in that way that always fixed and emphasized the point. He had a personality that appealed to me, that led me, that captivated me and held me entranced. He was eminently a self-made man and an excellent product. At ten years he began his fight and the battle had been continous, vigorous and incessant. Evidently his widowed mother, though poor, was a wonderful character, it was a joy to see how he revered her memory and how her precepts were, through him, bearing fruit and continuing her influence long years after she had closed the book of her life. It was a joy to listen to him, he had been such a student of human nature, to hear him tell of the incidents of his boyhood and the lessons they taught. The little duties, the battling with small affairs, which, little though they seemed yet set a large mark on his future life. Doing the little things well had led to the doing of big things well until his affairs had grown to a multitude of interest, of wide scope, all of which he was able to handle in the same unostentatious and masterful manner that he had handled the little affairs of the long ago. His decisions were quick and to the point. He was largely endowed with the great quality of what is commonly known as horse sense. Beginning as a news boy at ten with the doing of the little things well, as I have said, he had grown constantly until now he handled magnificent interests, widely scattered, and was respected and esteemed among men. The lines were many and varied but he held them firmly in hand and managed them so quietly that you would never guess he had them.

W. D. Gates.

Though I felt guilty in trespassing on his time yet I delighted in listening to his experiences, profiting greatly thereby, and prizing every moment I could be with him. Experience is indeed the greatest of teachers and leaves from the life of a man such as he, are entrancing, captivating and wonderfully valuable.

This time some one had suggested to him the doing of something that, while it might slip through in the ordinary business dealings, did not line up with his own code of ethics, and he told this story:

"Back in the old days, there were three of us little boys with our widowed mother and we were in what you might properly and truthfully call reduced circumstances. Reduced indeed about to the limit of reduction. We all worked and we worked hard. At night we were tired and hungry. Not a languid tiredness nor a fickle hunger, but a weary, deadly tiredness and a vigorous, boisterous, ravenous hunger, a hunger that made dry bread delicious. My mother was Irish, vigorous, honest in the extreme, and full of that old fashioned idea that it was her duty to make good, honest, industrious citizens of us, her sons. We had little chance of schooling but, after a frugal but filling meal at night, and when we were ready for that one other thing besides eating that a growing boy wants—sleep—she would line us up at a little table by the lamp and have us commit to memory our daily ration of literature. When this was satisfactorily accomplished, we could hit the bed. Whether we went early or late was strictly up to us, we went only when the task was completed. Mother was very determined and her decision was without appeal.

"At Easter time she was wont to prepare hard boiled eggs for us, stained with coffee and calico, and with these we fared forth to adventure with neighboring boys and, tapping our eggs against theirs, bet them on results. I conceived a very brilliant idea, got myself a China egg, colored it up and bankrupted all the boys on the street. So far it seemed a brilliant success but my brother, observing and coveting the spoils, insisted on a division to which I would in no wise yield. It was clearly my own idea and my own individual property. He laid his case before mother. She at once held court, heard all the evidence, called in the China egg, broke it into a thousand pieces and then made me go out and return all the winnings to the boys from whom I had gotten them, **and I have never used a China egg since** in secret, in public, in society or in business nor shall I do so."

GATES.

MOST SOILS NEED UNDERDRAINAGE.

It is very common now to hear a good farmer say, "The more I drain the more I see need of it." That ordinary farm lands which have a surface drainage sufficient to carry off the water of heavy rainfalls in a few hours, need underdraining, is not believed by many, but such lands may need it very much, not only to prevent the great waste from surface washing but rolling land is often injuriously affected by an excess of water in the soil. Water falling on high land enters into the soil and passing down into the subsoil comes in contact with a strata of close retentive clay, then slowly passes through the soil, near the surface, it may be, to lower rolling land, coming out in springs or seeps. This underflow of water is very general, and it may be so near the surface that the excess is taken up in the capillary action of the soil and brought to the surface and evaporated before it finds other outlets. The evaporation, however, keeps the soil cold, and often waterlogged. If we have not familiarized ourselves with these facts, we will often be at a loss to account for the condition of our crops on rolling land; they grow slowly and get yellow and spindling on lands that have a sunny exposure.

The wonderful change wrought by underdraining such soils will prove a gratifying surprise to many. The soil will become open, friable, warm and mellow in its nature, compared with what it was, and the crop yield almost doubled.

There are few farms in this State which have no portion that would not be benefited by drainage. Clay soils having no underlying strata of sand and gravel to carry away the excess of water, will be greatly benefited by underdrainage. Other soils, where the water level is so near the surface as to injure growing crops, need drainage.

Thorough work in drainage involves the laying of drains in parallel lines, so near to each other that all the soil and subsoil will be affected nearly alike, that the water level in the soil be lowered to a point where it will not injuriously effect the growing crops, and give a circulation of air through the soil and subsoil, above the water level.

Tile drainage is expensive when well done, and more expensive when poorly done, but most costly of all when not done at all, when it is badly needed, and often needed more than we think.

Under-burned brick is a form of waste that should be avoided by the use of better kiln methods and supervision.

BASIC REFRACTORIES FOR THE OPEN HEARTH.

By J. Spotts McDowell and Raymond M. Howe, Pittsburgh, Pa., New York Meeting, February, 1919.

No. 2. Laboratory Tests.

THE relative value of different materials used in the open-hearth furnace is measured by the service obtained and by that alone. Neither theoretical considerations nor the results of laboratory tests can be expected to demonstrate precisely what these relative values may be, although much can be learned from such studies. Furnace conditions cannot be reproduced in laboratory tests; these can merely show the relative resistance of different materials to destructive forces logically assumed to be similar to certain of those in the furnace. With these facts in mind, the authors some months ago planned a brief series of tests designed to compare properties of various basic materials that evidently affect the durability of these materials in the furnace. The results of these experiments, which were carried out under the direction of Raymond M. Howe at the Mellon Institute of Industrial Research of the University of Pittsburgh, are described here.

The properties of the basic refractories which evidently affect their value for furnace use are

1. Resistance to slaking.
2. Resistance to erosion or scouring action of the bath.
3. Resistance to the chemical action of impurities in the bath.

The wearing away of the basic bottom is due to the abrasive action of the bath, particularly during the frothing accompanying the process of oxidation, the scouring out of holes caused by boiling, chemical reactions between constituents of the hearth and of the bath or slag, and possibly a few other minor causes.

It is well known that all basic refractories soften at high temperatures and it is believed that the softer the bottom the more rapidly will the scouring action take place. Other things being equal, the material that shows the least degree of softening at operating temperatures should give the longest service.

Corrosion of the lining due to chemical action is harmful, not only because of the wearing away of the refractory but because the surface of the hearth becomes weakened and less resistant to scouring. An investigation regarding the relative resistance of various basic refractory products to the action of corrosive melts is included in the tests here described.

Basic Materials Studied.

The six commercial products studied include two magnesites, two dolomites, and two specially treated doloites. Throughout the remainder of the paper these will be designated by the letters A, B, C, D, E, and F. The material designated as A was prepared from Washington magnesite, ground with ferric oxide, and dead burned. B is a similar product prepared from Canadian magnesite. C. is a preparation made by coating dolomite granules at a high temperature with basic open-hearth slag. D is made by mixing together iron oxide and dolomite and calcining at a high temperature. E is a relatively impure dolomite that has been calcined. F is a rather pure calcined dolomite. The analysis of these materials at the time of arrival are given in

Table 2.—Analysis of Basic Materials.

	A	B	C	D	E	F
Moisture and ignition loss per cent	0.43	0.33	0.47	1.00	3.70	9.90
Silica, per cent...	7.36	4.56	11.46	9.84	6.68	2.16
Alumina, per cent	2.33	2.08	3.91	1.86	3.89	9.90
Ferric oxide, per cent	4.81	7.88	4.41	4.54	1.69	1.10
Lime, per cent...	3.12	18.94	47.92	48.70	49.84	51.00
Magnesia, per cent	81.60	66.40	32.10	34.73	34.50	34.85
Total	99.63	100.19	100.27	100.67	100.30	99.91

Table 3.—Recalculated Analyses of Basic Materials

	A	B	C	D	E	F
Silica, per cent...	7.40	4.57	11.52	9.94	6.93	2.40
Alumina, per cent	2.34	2.08	3.93	1.88	4.03	1.00
Ferric oxide, per cent	4.83	7.89	4.43	4.58	1.73	1.22
Lime, per cent...	3.13	18.96	48.15	49.19	51.64	56.61
Magnesia, per cent	81.93	66.66	32.26	35.18	35.75	38.69
Total	99.63	100.16	100.29	100.77	100.08	99.92

Table 2 and these analyses recalculated on a zero ignition loss basis to make them more comparable in Table 3.

Slaking Tests.

From the very manner in which basic materials are prepared, it can be assumed that a low ignition loss and the least possible tendency to slake are essential properties. It is said that these materials are slaking "powder" more or less when they give off CO_2 or water during heating. A part of this powder is carried out of the furnace by the draft, resulting in an additional loss in material, as well as injury to the checkers. It is suggested that the driving off of moisture and CO_2 under the action of the heat may also interfere with proper setting of the granules to a dense mass and thereby decrease the resistance to erosion.

Two methods of procedure were followed in the slaking tests. In the first, the materials were allowed to stand exposed to the air and each month a sample was taken, dried at 110° C., and its ignition loss determined. The results of this series of tests are not yet available. The second procedure consisted of moistening the different materials from time to time with water. Samples were then taken at intervals of 5 days, dried at 110° C., and the loss on ignition determined. The results are given in Table 4. Table 5 represents the ignition loss of recalcined E and F; it was deemed necessary to recalcine these two products because of their high loss at the beginning of the test.

Table 4.—Percentage Loss on Ignition at Regular Intervals.

	A	B	C	D	E	F
Loss at beginning of slaking test	0.02	0.20	0.08	0.95	3.93	14.04
Loss after 5 days	0.48	0.69	1.20	5.67	18.45	25.52
Loss after 10 days	0.95	1.52	1.62	8.35	20.00	26.30
Loss after 15 days	1.24	1.94	2.39	10.10	23.30	33.00
Loss after 20 days	1.36	1.92	3.01	10.92	23.66	29.70
Loss after 25 days	2.09	2.65	6.30	12.00	24.33	25.99
Loss after 30 days	2.54	3.25	4.63	14.99	24.67	30.81

Table 5.—Percentage of Loss Upon Ignition of Recalcined E and F.

	E	F
Loss after recalcination	1.55	1.29
Loss after 1 day	5.16	9.74
Loss after 2 days	9.40	
Loss after 3 days	12.79	15.81
Loss after 5 days	12.81	16.43
Loss after 10 days	15.80	
Loss after 12 days		23.53
Loss after 15 days	17.09	
Loss after 25 days	17.36	

Table 6.—Analytical and Slaking Data.

Material	A	B	C	D	E	F
Order of resistance to slaking	1st	2d	3d	4th	5th	6th
Lime, per cent	3.16	18.96	48.15	49.19	51.64	56.61
Magnesia, per cent	81.72	66.66	32.26	35.18	35.75	38.69
Silica, alumina, and ferric oxide, percent	14.70	14.54	19.88	16.40	12.69	4.62

It is to be observed that in the case of both magnesites and dolomites the slaking tendency increases with the lime contact and that in the case of the dolomites it varies inversely with the sums of the iron oxide, silica, and alumina contents. The state of these impurities, whether they are natural or artificial, undoubtedly exerts an influence that these tests do not reveal. In the latter case the thoroughness with which the granules are coated or impregnated with ore or slag is an important factor. The magnesite low in lime, A, showed a greater resistance to slaking than the one high in lime, B. The low-slaking tendency of C apparently proves that the granules were well protected by the slag coating. It is somewhat higher in impurities and lower in lime than D, a treated dolomite that slaked badly. E was the more stable of the two calcined dolomites; its condition at the time of receipt was far superior to that of F. It is believed that these two cases serve as the best examples of the effect of lime content and fluxes upon the rate of slaking. The air-slaking series, although incomplete, indicates that the different materials stand in the same relative order as given above.

A study of the figures given indicates that the lime content should preferably be as low as possible and that iron oxide, alumina, and silica, within limits dependent on the character of the dolomite and its treatment, are necessary in dolomitic refractories, if the slaking is to be kept within practicable limits; further, that a dead-burned magnesite free from lime, and possibly containing a fairly high percentage of impurities (10 to 15 per cent. of SiO_2, Al_2O_3, and Fe_2O_3) is the most suitable basic refractory for withstanding the conditions of this test. These conditions represent the influences to which basic materials may often be subjected in cars or when stored in the plant. Pure calcined limestone is the poorest material to withstand such conditions. Other combinations of the lime-magnesia series will arrange themselves in intermediate positions according to the lime, alumina, silica, and ferric-oxide content, and the temperature of burning.

Action Between Basic Materials and Fireclay or Silica Brick.

Failure is liable to result because of chemical reactions when basic materials are in contact with fireclay or silica brick at high temperatures. The latter are not uncommonly used in contact with magnesia brick above the slag line of the open hearth, but this is not considered the best practice and a buffer layer of chrome brick is desirable. With this exception the basic materials are generally carefully separated from silica and clay brick in furnace practice. In view of these facts the following tests were made to show the relative limits of safety when the materials mentioned are heated in contact. Moreover, it was believed that the behavior of the basic products in this test would afford an indication of their relative chemical activity and a measure of their probable resistance to corrosion in the furnace.

Cones sawed from bricks and placed in pats of basic materials were treated in a pot furnace together with a fireclay pat containing standard Orton pyrometric cones. Specimen A was found, after a few trials, to react with firebrick between Orton cones 18 and 26. A pat was then heated rapidly to cone 18 and although this temperature was held for 3 hrs. no action was observed. Another pat at cone 19 showed the same result. A third pat heated to cone 20 and held for 3 hrs. resulted in a violent reaction between the magnesite and firebrick. This procedure was followed in each case.

(To be continued.)

SILICA REFRACTORIES.

AS A RESULT of tests in relation to the manufacture of bricks, a formula has been established for the production of the standard bricks now manufactured at the Dunes Works (France). Silica rock containing at least 96 per cent of silica was used. The most satisfactory bond was obtained by the use of lime (generally in the form of milk of lime), but other materials such as china clay, aluminum, sulphate, sodium silicate, etc., had been used.

This addition reduced the refractories of the silica; only sufficient should be used to secure the adequate strength of the burnt brick. In burning the brick the lime had a bleaching action, as it would combine with the oxide of iron present, forming probably colorless double silicate of calcium and iron. The color of a brick was no criterion of its refractories, as a redder brick with low content might be more refractory than a white brick with higher lime content. The texture of silica brick was an important factor. Given that the chemical composition and refractoriness were satisfactory, the behavior of the brick in use might largely depend on its texture or physical structure. On examination, silica brick would be seen to consist of fragments of crystalline silica embedded in a matrix which was frequently glassy in character, and was probably mainly composed of calcium silicates, calcium-iron-silicates, and calcium-alumino-silicates. The size and shape of the fragments of silica had a definite influence on the behavior of the brick. It was desirable to have the brick composed of angular fragments of varying size from ¼-in. downwards, together with a proportion of impalpably fine powder so that, as in concrete, there should be as few voids as possible whether the texture was coarse-grained, open textured brick would better resist sudden changes of temperatures; but would, on the other hand, be susceptible to the penetrating action of flue dust, etc. Fine texture bricks would better resist the abrasive action of hot gases. Silica bricks, coarse or fine, were particularly liable to splitting. A compromise, with a brick of uniform medium texture, seemed advantageous, containing no fragments larger than ½-in. diameter.

In considering the refractoriness of silica bricks, it must be remembered that silica had not a definite softening temperature within which it began to lose its shape and commenced to flow, and it was extremely fortunate that that was so. This point was of importance in measuring the refractoriness of a brick sample. Generally speaking, silica firebricks would carry load at higher temperature better than aluminous firebricks, as the softening range of silica was not affected by pressure to the same extent as fireclay. When silica bricks collapsed under load at furnace temperatures the failure was more of a mechanical nature than a direct fusion collapse, and would be more or less abrupt instead of gradual. With a highly siliceous rock, and the addition of not more than 5 or 6 per cent. of fireclay a satisfactory cement was produced. A good cement could be made by fine-grinding those portions of used silica bricks which had not been fluxed in any way. He concluded by suggesting the following specification conditions for silica brick for metallurgical use, based on existing knowledge.

An analysis of the bricks should be supplied. Bricks should contain not less than 94 per cent. of silica and not more than 2 per cent. of lime. The bricks (due allowance being made for size) should contain a satisfactory proportion of impalpably ground material and no unduly large pieces. It was important that brick should be evenly burnt throughout, and regular in texture, containing no holes or flaws. Test pieces should not be more fusible than cone 32 when heating in an oxidising atmosphere, the temperature of the furnace being increased at the rate of about 50° C. per five minutes. Test pieces, after being heated to a temperature equivalent to cone 12 for two hours, should not show on cooling more than 1 per cent. linear expansion. There should not be a greater variation than plus or minus 2.5 per cent. from any specified dimension. When information as to the exact value of oxide of iron in a silica brick for metallurgical purposes was more precise and definite, it might be desirable to modify the condition as to the 94 per cent. content of silica, with not more than 2 per cent. of lime. M. M.

THE PROGRESS OF REFRACTORIES.

IN 1917 FIRE BRICK moved into first place among the important items in burned clay products, the total value of the production for the year exceeding that of common brick by more than ten million dollars. The comparative figure for the year according to the statistics of the U. S. Geological Survey were: common brick, $47,936,344; fire brick, $58,12,264. And even this latter total is added to in the summing up of all refractories in the separation of the industry into the two general groups of refractory and non-refractory, the total of all refractories being $65,729,357.

Of course quite a factor in producing the striking change in relation between the figures for common brick and for fire brick was the sharp increase in fire brick prices which came early in the great war, while during the year for which these figures were made there was only a slight increase in the value of common brick. But while this accounts for part of the showing, the fact remains that there was also an increase in the quantity produced, and there has been a steady and remarkable growth in the refractories industry in this country.

The total quantity of 9-inch equivalent fire brick reported to the U. S. Geological Survey for the year 1919 was 1,631,316,000. This was an increase over the previous year of 254,393,000 brick, or 18 per cent. Meantime the value increased $27,206,135, or 88 per cent. The brick quantity was made up of 1,304,286,000 of clay 9-inch equivalent fire brick, and 327,030,000 silica brick. The production of silica brick showed an increase of 41 per cent, and a value increase of 143 per cent. The average price of silica fire brick in 1917 was $47.43, an increase of $20.06 over 1916. The average price of the clay fire brick was $32.69, an increase of 74 per cent.

Pennsylvania continued as the leading producer of both clay and silica brick, furnishing something like 48 per cent of the quantity and 51 per cent of the total value produced. Ohio was second in output and value, Missouri third and Kentucky fourth, with New Jersey in fifth place. About 83 per cent of the total production was from these five states.

While the increase has not been even from year to year, or without break or interruption, there is a story of remarkable growth and wonderful development to be found in the tabulated figures of the fire brick division of the clayworking industry during a period of twenty years. In 1897 the total production of fire brick showed a value of $4,094,704, compared with $26,430,207 for common brick. By 1907 the total of fire brick had reached $14,946,045, while the total of common was $58,785,461, and by 1917 the total for fire brick had passed the total for common.

Fire Brick Production.

Year.	Total Value.
1897	$ 4,094,704
1898	6,093,071
1899	8,641,882
1900	9,830,517
1901	9,870,421
1902	11,970,511
1903	14,062,369
1904	11,167,972
1905	12,735,404
1906	14,206,868
1907	14,946,045
1908	10,696,216
1909	16,620,395
1910	18,111,474
1911	16,041,686
1912	17,877,629
1913	20,627,122
1914	16,427,547
1915	18,839,931
1916	30,806,129
1917	58,012,264

In addition to the general figures on the fire brick industry there is a tabulation by the Survey of the clay products into two general groups of refractory and non-refractory which furnishes some interesting light upon the breadth as well as the magnitude of this branch of the industry. Under this heading there is arranged a series of groups the largest of which is made up of fire brick, including refractory block or tile, boiler and locomotive tile, tank blocks and similar products, which total $42,501,669.

Of other fire brick, including some special shapes, there is a total of $473,713. Of silica brick, including clay bond and lime bond, there is a total of $15,520,595. Stove lining amounts to $619,882, zinc reported total $1,514,027.

Glass melting pots and other glass house refractories make use of $3,179,336; charcoal portable furnaces, $40,568; muffles, scorifiers, assay supplies and crucibles, $178,941; saggers, $122,000; chemical porcelain and chemical stoneware, $1,099,432; mantle, rings and special ware for gas lighting and heating, including magnesia ware and refractory porcelain for electric ranges and heaters, $247,999; potter's supplies, pins, stilts and suprs, $224,343; undistributed, $16,854. These items make up a total of refractories for the year 1917 of $65,729,357, which though less than half the total of all non-refractory clay products, does today constitute the biggest item in any one division of the clayworking industry.

In a word, fire brick and refractories generally have shown more progress during a twenty-year period of development than any other division of the clayworking industry. And the outlook points toward the industry being able to hold its own and make still further progress in the future.

CLAY PRODUCTS IN 1918.

ONE OF THE INTERESTING things about the preliminary report of the U. S. Geological Survey on clay products for 1918 is the fact that notwithstanding the serious curtailment of production in several important divisions, notably building brick, the total value of all clay products for the year is greater than that for any other year except 1917, and it is only a little below that. The total for 1918 was $228,547,000, compared with $248,023,368 in 1917.

Twenty years back, in 1898, the total was only $74,487,680 or just one-third the showing of last year. Back ten years, in 1908, the total was $133,197,762, while in 1915, just before the war opened in Europe, though we had had some higher periods intervening, the total was not so much better, being $163,120,232. The first big pick-up was in 1916, when the total had climbed to $207,260,091, the highest point in what might be termed normal times. The total was higher in 1917 because of increases in value, and this was true also of 1918, which showed the highest values in the history of the clayworking industry, with some of the important lines like common brick at the lowest ebb of production since 1897.

The quantity production in common brick was 5,864,909, practically the same as in 1898 and slightly above the production of 1897. Then in 1918 it slumped down to 3,450,612, which perhaps is the lowest production figure recorded since records of the industry have been kept. In contrast to this the highest production figure was in 1906, with a total of 10,027,039 brick.

General Decrease in Output and Value.

The clayworking industries experienced unusual conditions in 1918. The decreased demand for structural material was felt early in the year on account of the general decline in building operations. Vitrified brick, sewer pipe, and drain tile are used principally in engineering works, and the demand for them apparently should have been strong for roads, farm drainage and public utilities in the army camps and cantonments and in settlements for war workers, but the shortage of labor and difficulties of transportation restrained the output of these wares, which decreased considerably in value compared with 1917. The refractory products—fire brick and stove lining—showed considerable gains in value.

War Restrictions Reduce Output.

The industries were also subject to curtailment of fuel and to building and other restrictions imposed by the war boards with a view of making the country more efficient in the supreme business of the times, that of winning the war. The fuel curtailment order issued by the Fuel Administration to the clayworking industries under date of April 13, 1918, provided that the percentage of fuel allowed for these industries, as compared with that shown by the average consumption in 1915, 1916 and 1917, would be 50 per cent for common brick, paving brick, face brick, terra cotta, roofing tile, floor and wall tile, and sanitary ware; 75 per cent for hollow tile, sewer pipe, drain tile and flue lining, and 85 per cent for stoneware, except chemical stoneware.

Greatest Value Except that for 1917.

Notwithstanding these hindrances the value of the output of the kilns of the country in 1918 was the greatest recorded in any year except 1917. As might be expected, the decreases in quantity of output have been considerably larger proportionately than the decreases in value, owing to the higher average prices prevailing in 1918. The quantity of common brick, for instance, decreased 41 per cent and the value decreased 22 per cent. The average price per thousand increased 32 per cent. The quantity of fire brick decreased 16 per cent and the value decreased nearly 10 per cent, whereas the average value per thousand increased 30 per cent. Hence where value only is given the decreases do not tell the whole story but they constitute the best data now available for comparison. The only brick and tile products that increased in value were the refractories, fire brick and stove lining, for they were used in many war industries. The fire brick, including silica brick, was valued at $63,637,000, an increase of $5,625,000, or nearly 10 per cent; the stove lining increased in

CLAY PRODUCTS OF THE UNITED STATES IN 1917 AND 1918.*

	1917	1918	Approximate increase or decrease in 1918. Quantity or value	Per cent.
Common brick:				
Quantity ....M.	5,864,909	3,450,612	— 2,414,297	—41.2
Value	$47,936,344	$37,208,000	—$10,728,000	—22.4
Average value ....per M.	$8.17	$10.78	+ $2.61	+31.9
Face brick:				
Quantity ....M.	757,618	364,421	— 393,197	—51.9
Value	$10,391,368	$6,339,000	— $4,052,000	—39.0
Average value ....per M.	$13.72	$17.39	+ $3.67	+26.7
Enameled brick	$889,899	$685,000	— $205,000	—23.0
Fancy or ornamental brick	$192,072	$35,000	— $157,000	—81.8
Hollow building tile or block:				
Quantity ....tons	2,590,028	1,964,000	— 626,000	—24.2
Value	$13,255,433	$12,980,000	— $275,000	— 2.1
Average value ....per M.	$5.12	$6.61	+ $1.49	+29.1
Tile (not drain)	$6,821,221	$4,894,000	— $1,927,000	—28.3
Terra cotta	$6,173,550	$2,505,000	— 3,669,000	—59.4
Vitrified brick or block:				
Quantity ....M.	706,934	403,512	— 303,422	—42.9
Value	$10,664,560	$7,232,000	— $3,433,000	—32.2
Average value ....per M.	$15.09	$17.92	+ $2.83	+18.8
Sewer pipe	$17,307,211	$15,399,000	— $1,908,000	—11.0
Drain tile	$11,008,163	$7,388,000	— $3,620,000	—32.9
Fire brick:				
Quantity ....M.	1,631,316	1,373,674	— 257,642	—15.8
Value	$58,012,264	$63,637,000	+ $5,625,000	+ 9.7
Average value ....per M.	$35.56	$46.33	+ $10.77	+30.3
Stove lining	$619,882	$730,000	+ $110,000	+17.8
Miscellaneous	$8,588,879	$4,292,000	— $4,297,000	—50.0
Total brick and tile....	$191,860,846	$163,324,000	—$28,537,000	—14.9
Total pottery	56,162,522	65,222,951	+ 9,060,429	+16.1
Grand total	248,023,368	228,547,000	— 19,476,000	— 7.9

*Figures for 1918, except pottery, estimated.

value from $619,882 in 1917 to $730,000 in 1918, an increase of $110,000, or 18 per cent.

Decrease in Common Brick.

The production of common brick, until 1917 the most valuable product of the clayworking industry, showed decrease in both quantity and value. The quantity produced in 1918 was 3,450,612,000, which, when compared with the quantity produced in 1917, 5,864,909,000, shows a decrease of 2,414,297,000 or 41 per cent. The value of common brick marketed in 1918 was $37,208,000, which, when compared with the value in 1917, $47,936,344, shows a decrease of $10,728,000, or 22 per cent. The production in 1918 was the smallest ever recorded by the U. S. Geological Survey, and the value is the smallest since 1898. Common brick is used principally in the structural industries, which, so far as general operations were concerned, were almost paralyzed in 1918. It is true that the number of Government buildings erected in that year was abnormally large, but the number of brick used in these buildings was comparatively small, and their use by the Government contributed little to offset the losses in the general demand for common brick. The average price per thousand in 1918 compared with 1917 increased $2.61, or to $10.78, the highest average price reached in recent years in the United States for common brick, and nearly twice as great as it was 10 years ago. Another case that contributed to the decrease in the production of common brick is the increasing use of hollow building tile.

Hollow Building Tile Growing in Favor.

Hollow building tile, in common with other structural products, decreased in quantity and value in 1918, but its decrease in value was smaller than the decrease in the value of any other structural materials, except fancy brick and enameled brick, which are minor products.

The hollow tile output for 1918 was 1,964,000 tons, valued at $12,980,000, which showed quite a decrease in quantity as compared with 1917, but not so much decrease in total value, for the prices ranged somewhat higher. The production in 1917 was 2,590,028 tons, valued at $13,255,433. This is the highest value ever recorded, and presumably the highest production, though earlier there was no tonnage record of this industry the statistics giving values only. The hollow tile industry had never attained a total annual value of ten million before the war period, but it has been growing at a rate which suggests that it will remain well above this figure in the future.

Paving Brick Shows Decrease.

Vitrified brick or block, which is used chiefly as paving material, was in less demand in 1918 than for many years, the decline in its use being caused by high freight rates, embargoes on rail shipments of commodities least essential for war purposes, and shortage of fuel. The quantity marketed in 1918 was 403,512,000 brick or block, a decrease of 303,422,000, or 43 per cent. The value was $7,232,000, a decrease of $3,433,000, or 32 per cent. The production in 1918 was the lowest since 1896 and was only about 40 per cent of that of the maximum in 1909. The value of this product in 1918 was the smallest since 1905, though the average price per thousand ($17.92) was the highest recorded.

High Value for Sewer Pipe.

The third brick and tile product in value was sewer pipe. The output in 1918 was valued at $15,399,000. The growing popularity of this material in engineering works is shown by the fact that its decrease in value, $1,908,000, or 11 per cent, was proportionately small. The value in 1918 was the largest recorded except that in 1917, and making a liberal allowance for increase in price the product in 1918 must have been larger than in any year prior to 1912. Considerable quantities of vitrified sewer pipe were used in Government projects at army camps and cantonments.

Low Levels for Face Brick, Fancy Brick, Building Tile and Terra Cotta.

Face brick is used principally in the outer walls of buildings of the better class. As the erection of such buildings naturally fell off during the war, the use of face brick decreased in 1918. The quantity of face brick marketed in that year was 364,421,000, a decrease of 393,197,000, or 52 per cent, compared with 1917, and the value was $6,339,000, a decrease of $4,052,000, or 39 per cent. The quantity marketed in 1918 was the smallest since 1901 and was about one-third of that of 1916, the year of maximum production. The value was the lowest since 1904. The average price per thousand ($17.39) was $3.67 higher than that of 1917, the previous high year.

Terra cotta and tile other than drain tile, both structural material used principally in high-class buildings, also showed a large decrease in value and reached the lowest point recorded for many years. The value of terra cotta marketed in 1918 is estimated at $2,505,000, a decrease of $3,669,000, or 59 per cent, compared with 1917. The value of tile other than draintile was $4,894,000, a decrease of $1,927,000, or 28 per cent, compared with 1917. The value of fancy or ornamental brick is estimated at only $35,000 in 1918, a decrease of $157,000, or 82 per cent, compared with 1917. It showed a larger proportionate decrease in 1918 than any other clay product, as the use of fancy or ornamental work in the structural industries was reduced to a minimum in 1918. The demand for fancy or ornamental brick has been decreasing for many years, these products having been replaced to some extent by terra cotta, and it will probably become so small within a few years as to be negligible.

Fire Brick Increases in Value and Decreases in Production.

The production of fire brick, the most valuable product of the clayworking industries, showed decrease in quantity and increase in value. The quantity produced in 1918 was equal to 1,373,674,000 9-inch equivalent brick, which, when compared with the quantity produced in 1917, 1,631,316,000, shows a decrease of 257,642,000, or 16 per cent. The value of fire brick marketed in 1918 was $63,637,000, which, when compared with the value in 1917, $58,012,264, shows an increase of $5,625,000, or nearly 10 per cent. This is the largest value ever recorded by the Geological Survey for fire brick and is more than twice as great as that in any other year, except 1917, and more than three times as great as that in any year prior to 1916. The quantity reported for 1918 was the greatest recorded except that for 1916 and 1917. The great increase in output of refactories in recent years is due to their use in the manufacture of iron, steel, coke and the munitions of war. The average price per thousand ($46.33) is the highest recorded and is more than twice as much as for that of any other year except 1917. Stove lining, the other refractory, also showed a large increase in value when compared with 1917.

Imports and Exports.

The total value of the imports of clay products at the port of shipment in 1918 was $6,684,200, an increase of $41,627, or less than 1 per cent over those in 1917. The value of imports in 1918 compared with that in 1907, the year showing the greatest value of imports, decreased $7,126,732, or nearly 52 per cent. The increase in 1918 over 1917 was in pottery, the brick and tile products showing a small decrease. Ninety-six per cent of the imports ($6,393,580) were pottery, the remainder ($290,620) consisting of brick and tile.

The value of the exports of domestic clay products in 1918 was $7,932,574, an increase of $979,311, or 14 per cent, over 1917. Of these exports $5,700,371, or 72 per cent, was brick and tile; $1,479,552, or 19 per cent, was pottery, and $752,651, or 9 per cent, was unclassified.

Small Output of Draintile.

Draintile is used principally in the improvement of farm lands in the Central States, where large quantities of it are laid annually. Notwithstanding the efforts to increase agricultural endeavors, its decrease in value in 1918 was $3,620,000, or 33 per cent. The output in 1918 was valued at $7,388,000, which, with proper allowance for increased cost, was probably the smallest output since 1903.

Written for The Clay-Worker.

SEEN IN NEW JERSEY.

BUSINESS HAS PICKED UP during the past month in all clay products. The highest priced products are in better demand and the lowest priced are wanted in larger quantities. Building permits have increased, architects say they not only have more on their boards, but they have more inquiries. One city is erecting one sort of building. Another is erecting something else, but all alike need to erect dwellings of some sort. Never before has the state been so underbuilt. Never before have searchers for homes been so puzzled about what to do. One city or town is as bad as another. All need new dwellings of all sorts. Builders are learning the evident fact that prices for building material cannot go down and no one expects labor to recede from its present position.

The price of common brick remains firm at about the same range as quoted last month. In Newark prices are approximately $20.00 delivered on the job. In Paterson the price is about $18.00. In Passaic the quotations are from $17.50 to $18.00. Jersey City fares a little better and gets its brick for about $16.00. Trenton is asking $15.00. For the brick made at Hackensack around $17.00 is asked. Raritan brick in the vicinity where it is made can be bought for about $15.00. Atlantic City, where they are building a number of hotels, is getting its brick for $18.00. New Brunswick asks about $17.00 Other cities and towns get their brick at different prices, but all are about the same figures after all. The cost of production doesn't vary materially in any of these cities, yet a slight difference in price is noted in substantially all of them. Hackensack is selling a good deal of brick in and about Paterson and delivering it, seven miles, by motor truck. It is the only way the contractor can be assured getting his material. If he waited for the railroads to deliver he would get his brick next season. Face brick is quoted at from $34.00 to about $45.00 delivered at Newark. At Paterson it is priced at $40.00 to $50.00. Trenton dealers quote a range of from $35.00 to $45.00. The demand is reported good, with light colors predominating. Fire brick is held at from $68.00 to $75.00 and demand is said to be a shade less active. These are general statements. And they represent the situation in the larger centers. Builders are calling for samples of all these grades and are about ready to place orders for considerable quantities in some localities.

Abel Hansen, the capable head of the Fords Porcelain Works, at Perth, Amboy, is endeavoring to get a canal built from Morgan on the Raritan river, to Boddentown, below Trenton. Mr. Hansen, with a number of others have incorporated the New Jersey Inter-Coastal Canal Association and the new concern has for its principal object the construction of such a canal. The contention of Mr. Hansen is that not only would a canal connecting the Raritan with the Delaware river benefit the ceramic manufacture in that vicinity, but other industries would be helped proportionately.

The bricklayers' union at Newark has signed articles of agreement with employes, the first time for more than twenty years, and it is hoped that in this way continuation of the building operations so auspiciously begun will be assured. The agreement remains in effect until next January when it comes up for consideration again. The scale calls for 87½ cents an hour to January 1. If, at that time bricklayers in New York secure an advance the same advance is to be granted here. The agreement calls for an eight-hour day with a half holiday Saturday and all cutting of material on the job is to be done by the men. This was put in to prevent disputes with other trades which have heretofore caused considerable trouble. Another feature is a strike clause which enables adjustment before the men actually go out if it is lived up to. Many believe that a long step has been taken in stabilizing the trade in Newark and contractors elsewhere are considering similar action to protect themselves.

The good weather of August has enabled manufacturers to get to work and business is brisk all along the state. Hackensack yards are filled with brick. At Mountain View much work is under way. The Raritan section is busy. The yards around Trenton have all they can do. All up and down the Raritan valley business is better than it has been for several years. The principal difficulty now is delivery. But the motor truck is solving that problem and gradually all manufacturers are introducing the truck into their establishments. It is the only way they can be certain that purchasers will get the brick they order. They cannot be delivered by rail as agreed, at least not in this section.

N. H. Sloan, broker, of Paterson, is getting a good deal of business. He has a large line of common, pressed and fire brick, with some very handsome enameled offerings. He has lately made some good sales and is looking forward to others in the very near future.

Walter Schultz, of Hoboken, has bought a yard in Hackensack and is planning to turn out perhaps 5,000,000 this year. The yard is to be pushed to capacity and under Mr. Schultz's capable management it will be likely to yield to capacity. He has made a success of his Hoboken business and now he hopes to make an even more conspicuous success of his new Hackensack yard.

The labor situation is not as bad as it was during the war, but it is bad enough. Few yards have all they want, though all yards are getting along some way. They are doing better than they have for two years. The output will be pretty nearly up to pre-war days. Where new machinery has been installed the output will probably exceed the output of prewar days, but unless new machinery has been added the production is still down and the situation offers no indication of improvement so far as labor is concerned. Many of those who formerly worked about the yards have gone home. A great many went into the army here or abroad and will never come back. And the volume of brick yard labor which formerly flowed over New Jersey and every other brick producing locality has declined to almost nothing.

In no section of the country are brick and other clay men more alive to the situation than they are in New Jersey. They have an association which holds two general meetings a year and the papers read and the discussions are so good that every man present is benefited by the visits he makes to these affairs. A number of important projects are under way, one of which, the proposed museum of clay products, which is the plan of Charles N. Cook, president of the New Jersey Clay Workers' Association, to impress upon the minds of the people of this state, and others the great range of clay articles made and their value in different lines of mechanical development. Brick, which is a large interest, forms only a very small part of the output. Porcelain, sanitary ware, electrical porcelain and so on through the list, give to New Jersey prominence as a clayworking state, which unfortunately its own residents do not appear to realize. But with the association at work as hard as it is now the situation is improving and ultimately the state and other states will know that New Jersey's clay industry is among the most important in the country.

A. L. B.

BRICK HIGHWAYS HAVE LASTED FOR MANY CENTURIES.

ONE OF THE EARLIEST materials used as a surfacing for roads and streets was brick and this material has stood with the granite block for the past two centuries as the highest type of paving material. There are brick roads in Holland giving satisfactory service today which were built over 100 years ago. The first brick pavement in the United States was laid in 1872, and examples of brick pavements still in use and over thirty years old can be found in nearly every town and city in the eastern and central states. This long experience has established vitrified brick as a standard, dependable road surfacing material. When it is considered that some of the earlier brick pavements were laid on a sand or gravel foundation, using hand-made brick which were frequently not vitrified, their durability under all traffic conditions is truly remarkable.

The experience of late years in the manufacturing of paving brick and the construction of brick pavements, has enabled manufacturers and engineers to improve the brick paving in a number of ways until it now represents the highest type of paving material.

A Modern Brick Paved Country Highway, Smooth, Clean, Good for a Quarter of a Cenutry Under the Heaviest Traffic.

Some Improvements.

Replacing hand labor by machinery which can turn out a uniform, perfectly formed brick has been one line of advancement. A greater knowledge of the chemistry and clays and shales and of the changes occurring during burning has improved the quality, strength and toughness of paving brick. The development of positive methods of testing brick enables the engineer to accurately determine the durability and wearing qualities of the brick before they are ever laid in the pavement. On the construction end, the introduction of the concrete foundation about 1880, and the bituminous and cement grout fillers for the joints about fifteen years later, has made possible the construction of brick pavements giving even greater satisfaction and longer life.

These improvements in both the manufacture and laying of brick pavements have been accomplished without a corresponding increase in price due to the greater efficiency in the machinery and organizations at both the plant and on the road.

Life of Pavements.

In regard to the life of such a road surfacing, unbiased highway engineers conservatively fix it at fifty years. A bulletin on "Vitrified Brick Pavements for County Roads," published by the Office of Public Roads, U. S. Department of Agriculture, Washington, D. C., has this to say regarding the upkeep, cost and durability of vitrified brick roads:

"If brick pavements are properly constructed at the start, the work of maintaining them should, except for cleaning, be almost negligible for a considerable period."

THE HIGH COST OF POOR HIGHWAYS.

NO ONE doubts that there are benefits resulting from improved public highways, but many citizens do not realize how very great are the effects of good roads in community and state life. Improved highways and an increased property valuation are inseparable. When the cost of hauling produce to market is decreased, the value of the farmer's land is increased. A smooth, well-graded highway reduces the time of travel and permits the movement of a larger load. One farm located four miles distant on a good road is often economically closer to town than another farm located only two miles away but situated on a bad road.

Most of the opponents of the good-roads movement—if they may be called such—base their arguments on the high costs involved. These citizens want roads, but not the kind that is enduring. They hold to the old idea that building a road is a simple feat instead of an engineering problem. They ignore plans to reduce grades and shorten length, and prefer to economize on initial outlay by following the surface contours. Such individuals think to overcome gravity by the application of axle grease. They forget or do not know that a horse cannot pull with force and at the same time raise his own weight up a hill. Like a chain that is no stronger than the weakest link, a length of highway is limited in use by the worst grade on it. For example, if a road is level a 1200-pound horse exerting a tractive pull equal to one-tenth of his weight can draw a load of approximately one ton. But if there is a hill on this road having a ten per cent grade, the horse exerting the same force against the collar can draw a load of only 750 pounds.

This condition is even more emphasized when instead of an earth road we take the case of a smooth macadam highway. The load that can be hauled on a level macadam road by an average horse is two and a half times as great as that which can be drawn on a level dirt road; but if a ten per cent grade is encountered, then the horse traveling on the smooth macadam can haul less than thirty per cent more than on the dirt road. All of which means that the better the road the more necessary it is to eliminate grades.

As to how much money a community is justified in spending for road improvement, the answer must depend on the amount of the possible reduction in the total annual hauling charges of the district. One authority estimates that the total cost of hauling the cotton crop in a recent year was in excess of thirty-five million dollars. Consequently, an eight per cent reduction in the cost of hauling would have effected a saving of about $2,800,000. This means that for road improvement the people in the cotton states could have obligated themselves to pay a two-million-dollar annual interest and maintenance charge and profited by the investment. Certain localities report that the establishment of better roads has reduced the ton-mile costs for hauling from $1.40 to twelve cents. It is easy to realize what a fraction of such savings would mean to the nation if they became general throughout the country.

FIRE BRICK STATISTICS.

A preliminary report of the U. S. Geological Survey on the clay-products industry for 1918 just at hand gives the total fire brick production for 1918 as 1,373,674,000 of 9-inch equivalent brick, valued at $63,673,000. This shows some falling off in the production, with a pretty sharp increase in the average value, bringing the total value well above anything yet recorded. The average price for fire brick during 1918 was $46.33, which is more than double the price received in any year except that of 1917.

MORE BRICK ON LINCOLN HIGHWAY.

It is interesting and pleasing to note in the news of the Lincoln Highway Forum two recent reports of the use of more brick paving on this great roadway. One is from Ohio, while the other comes out of the west, from Nebraska. Stark county, Ohio, has let a contract for more than eight miles of brick construction at a cost of $356,000. The stretch to be covered by this paving is from East Canton through Minerva. Also many of the farmers living along the Lincoln Highway between Van Wert and Delphos have petitioned the county commissioners to use brick paving rather than bituminous macadam.

The Nebraska proposition involves brick paving entirely across Douglas county.

HOLLOW TILE STATISTICS.

In the U. S. Geological Survey report on the clayworking industries for 1917, which is now available in complete form, there is for the first time a compilation of tonnage statistics of the hollow tile industry. The results show that there were 2,590,028 short tons of hollow tile marketed in 1917, at an average price of $5.12 per ton. This product was reported from 37 states showing that it has spread out considerably in territory. Two new states added in the list of manufacturers for that year were Oklahoma and Arizona.

In one of the statistical tables in this report there is a listing of fireproofing and hollow building tile or block by total values for the five-year period beginning in 1913. This shows that in 1913 the total production value was $8,620,216, while in 1917 it had risen to $13,255,433. The first general statistics of annual value of fireproofing and hollow building tile production shown are those of 1897, the total then being a little less than two million dollars, and just a little more than the total for the item of architectural terra cotta. Since that time the hollow tile industry has made much more progress than the architectural terra cotta, the total of the latter for 1917 being less than half that of hollow tile.

Ohio was the greatest producing state, furnishing something like 35 per cent of the total tonnage. Other important producing states in the order named were: New Jersey, Iowa, Illinois, Pennsylvania, Indiana, Texas, Kansas and California.

The average price varied from $12.90 in Florida to $2.65 in Louisiana. Even among the large producing states there were some pretty sharp contrasts in average prices, the averages listed for these states being: Ohio, $3.88; New Jersey, $7.16; Iowa, $5.90; Illinois, $4.77; Indiana, $5.34; Pennsylvania, $4.78; Texas, $6.24.

Those cost figures of bygone years may be useful some day but they don't fill the needs of the present day by a whole lot.

GREAT BRITAIN BUILDS WITH BRICK.

TO THE STAY-AT-HOME AMERICAN living in a lumber built town, it must be surprising how Great Britain tackles her building matters. For some years there has been a steadily growing shortage of houses for the middle and working classes. Owing to the war there has been neither labor nor materials to build, and so it is estimated there is a shortage of half a million houses in England alone.

Conferences have been held and the subject discussed from every possible point of veiw but now the time has come for action. The Government has passed acts compelling every local authority to build houses for the people and is making huge grants from the treasury equal to over a dollar per week of the rent of each house. It is recognized that in the present chaotic condition of things it is impossible to build on the old basis of an economic rent, but building must commence and the money must come from somewhere.

The leading daily papers have been holding competitions carrying substantial prizes with a view of getting good plans for the authorities to work from, and a Government commission has done some excellent work in the same direction. The local authorities have prepared their schemes and no district is too small or unimportant to be allowed to escape its responsibilities. Schemes for some thousands of houses have been already approved by the Government and others are being considered weekly.

Houses for Workmen.

In each of these schemes not only is the erection of houses considered, but their arrangement and lay-out on the site. In the cities, not more than twelve houses to the acre are permitted, while in the rural districts no more than eight are allowed, to the same area. Not more than eight houses can be in a row of the same design. Generally not more than four or six are of the same design in close contiguity to each other, and not more than six or eight are built in a row, in the majority of the schemes approved.

While the private builder is engaged to do the work all the schemes are being carried out by the local authorities, with public money for the common good, with the exception of a few which are being promoted by employers of labor working through public utility societies. These are not run for private profit, their dividends are strictly limited by law, and frequently the tenants are the principal shareholders. They have to conform to the general rules for laying out their estates, and are often the most enlightened and progressive of such bodies.

The materials for this great national house building activity are a matter of great anxiety at the present time, lumber is scarce and expensive, metal goods are almost as bad in both respects, while other important necessities are almost as difficult to get. To overcome this, the Government has set up a special "Building Supply Department," with a well known builder at the head of it. This is trying to put some organization and system into the gathering together of the huge quantities of materials required, and that immediately.

Building Brick Almost Exclusively.

Readers of this journal will be most interested in the fact that notwithstanding the present high price of brick and the difficulty in getting them, there is no thought of substituting lumber even in these rural districts where home grown stuff is plentiful. There will be a few houses built of stone in places where this material abounds naturally and a few, a very few, authorities are trying other materials on a limited scale, but all these are incombustible, nobody ever suggests the use of lumber, and if they did they would not be listened to. No! Great Britain is building to endure so she is building with brick.

Now the quantities of brick required for this stupendous task is prodigious. Already the Building Supply Department has placed orders for just one thousand millions. This includes five million facing bricks to be specially made. To facilitate the making of these, this government department has given help to nearly three hundred brickyards in the way of speeding up deliveries of machinery and fuel. In other cases means of transport have been improved and men have been especially demobilized from the army to assist manufacturers of bricks.

During the war, betwen eight and nine hundred brickyards were closed. These have nearly all been restarted and an enormous increase of output is the result. The output at the present time is forty-five millions per week as against ten millions this time last year. The transport of these bricks is not an easy matter with so much railroad rolling stock still in France, but many brickyards are situated near canals and these will be used to the utmost.

Brickworks In War Times.

What is proving the greatest hindrance in some localities is the fact that some brickyards were commandeered during the war and used as storage for explosives, the safe keeping of which was an anxiety to the war authorities. Some of these yards have not been released at the time of writing although the dangerous stores have been removed. In those towns where brickyards are not numerous this state of things has been almost a scandal.

The Peterborough district is one of the largest centers of brickmaking in the world. There are nearly one hundred continuous kilns and most of these are now at work turning out about five millions of brick per week. The trouble now is to remove this output, as transport is not working easy on the railroads. Luckily there is good canal connections which communicate with most parts of England and these will be made the fullest use of by means of motor boats.

It must be remembered that as the home demand for brick is so great, the larger demands of France and Belgium can receive practically no attention from the British brickmakers for a considerable time to come, notwithstanding the temptation of fairly high prices. If freightage does not block the way, there ought to be a chance for the American brick manufacturers, especially on or near the Atlantic seaboard. Manufacturers of all building materials in Great Britain look like being in for the time of their lives for years to come.

SERVICE NOT SELF.

THERE was one resolution adopted at the recent Rotary Convention that seems to have been well timed. Some Americans think that America won the war, some Britishers think that the British Empire won the war, perhaps somebody in Japan thinks that the Japanese won the war. The Rotary Convention resolution proposed that we shall all recognize the fact that the war has been won and that all who participated in it helped to win it and let it go at that.

We shall make a fine exhibition of ourselves if we spend any time or newspaper space in quarreling among ourselves as to who did the most towards winning the war. If we have got to prove which one of us was the best man there is only one way to do that and that is to turn in and fight among ourselves until there is only one nation left. This is not a time for the establishment of a supremacy of any one nation or any one empire.

Let us have peace.—Rotarian.

THE TRADE QUIZ BOX

Many readers of The Clay-Worker are wont to ask the editor for information on various matters pertaining to the brick and tile business. Usually such questions are answered by letter on the theory that the party asking the question is the only one particularly concerned, but many times the queries are of a general character and cover points in the trade in which the general reader may be interested, so we again inaugurate a Trade Quiz Box. Under this head, questions and answers will be given and any reader who can give further particulars in response to any particular query, or desires information on any phase of the business, is invited to make use of this department.

COST OF LAYING HOLLOW BLOCK.

Question—Have you available any data on the comparative cost of laying up hollow block or tile and laying brick? What I want to get at is how much hollow block wall can be up in say the time required to lay 1,000 brick, and any other useful data you may have on the subject of the relative cost of brick walls and hollow tile walls.—C. D.

Answer—Comparative costs in any case of this kind are varied so much by local circumstances and conditions that any definite figures on the subject are likely to be misleading unless considered in this light. Some say that in the same time required to lay 1,000 brick a bricklayer will lay up hollow tile wall equivalent to 2,500 brick. Others make the ratio of wall cost as 20 to 30 in favor of hollow block as compared to brick. All such figures or estimates, it seems to us, are rather tentative than conclusive, for a lot depends upon the size of blocks, the relative cost of block and brick in a given community, which is further complicated by the fact that blocks are figured on a tonnage basis for price while brick are figured by the thousand. It must all be reduced to square foot wall space of specified thickness. This should make an interesting subject for discussion, however, and the exchange of experiences.

SEWER PIPE STATISTICS.

Question—Have you in your office any record of the history of sewer pipe development in this country; that is, statistics to show the growth from the early or pioneer days?—P. S.

Answer—There is at hand definite data compiled by the U. S. Geological Survey on the production value of sewer pipe from the year 1897, and while the pioneer history goes beyond that the real big development has been since that time. At that time the total annual production was $4,069,534, while for last year the total was $15,399,000, the production evidently being curtailed somewhat by war conditions. Sewer pipe had passed the ten million mark in 1915 and has been above it ever since, the greatest total value so far being in 1917, which was $17,307,211.

ROOFING AND FLOORING TILE.

Question—Will you kindly give us some information about roofing tile, whether it is making progress or backsliding, and what the prospects are for a larger market for this product? Also, flooring tile. Is it a growing business, and if so what is the comparative magnitude of this in relation to roofing tile?—T. P.

Answer—If we are to judge by the figures of the U. S. Geological Survey, it looks like roofing tile is slipping. Back in 1913 and 1914 the total annual production went above the million dollar mark, since which time it has gone down till the 1917 production shows a total of only $871,872. One reason perhaps is the great favor obtained of late years by composition roofing, which has not only been widely exploited, but has also been extensively used to the exclusion of metal, slate and wooden shingles as well as clay tile. Whether clay tile can be brought to the front again by wide exploitation is an interesting question.

The flooring tile production has been crowding roofing tile for place several years now, and in the main has led in the total value of annual production, which during a five year period has ranged from a little less than a million to above two million. At the present moment it looks as if its uses will expand more in the next few years than roofing tile, unless in some way there is more interest and activity aroused at the roofing tile end.

FIRE BRICK IN JAPAN.

Question—Have you available any information as to fire brick in Japan, whether or not there is a market there for the American product, or whether they buy the machinery and make their own fire brick? If so any information you can give us on the subject will be greatly appreciated.—F. B. Co.

Answer—The general disposition in Japan seems to be to develop their own resources and in so far as practical make their own fire brick. This would indicate a better market there for brick machinery than for the brick itself. Still there is a market for special fire brick and refractory material in Japan and some is being sent there right along from this country. A consular report from Kobe says that Japan produces over 100,000,000 fire brick a year, and the importation amounts to more than 1,000,000, about 65 per cent of which comes from America. The general plan seems to be to import special refractories which they are not so well prepared to make, and it is these which should have the best show in that market. You can get a list of the principal importers of fire brick and allied products in Kobe by making application to the Bureau of Foreign and Domestic Commerce, at Washington, and referring to file No. 114077.

ELECTRICAL PORCELAIN.

Question—Can you furnish us with some information on the subject of the clay requirements for electrical porcelain, whether it is to be had among the domestic offerings or must be imported? Whether the trade in this product is growing in keeping with the production?—Interested.

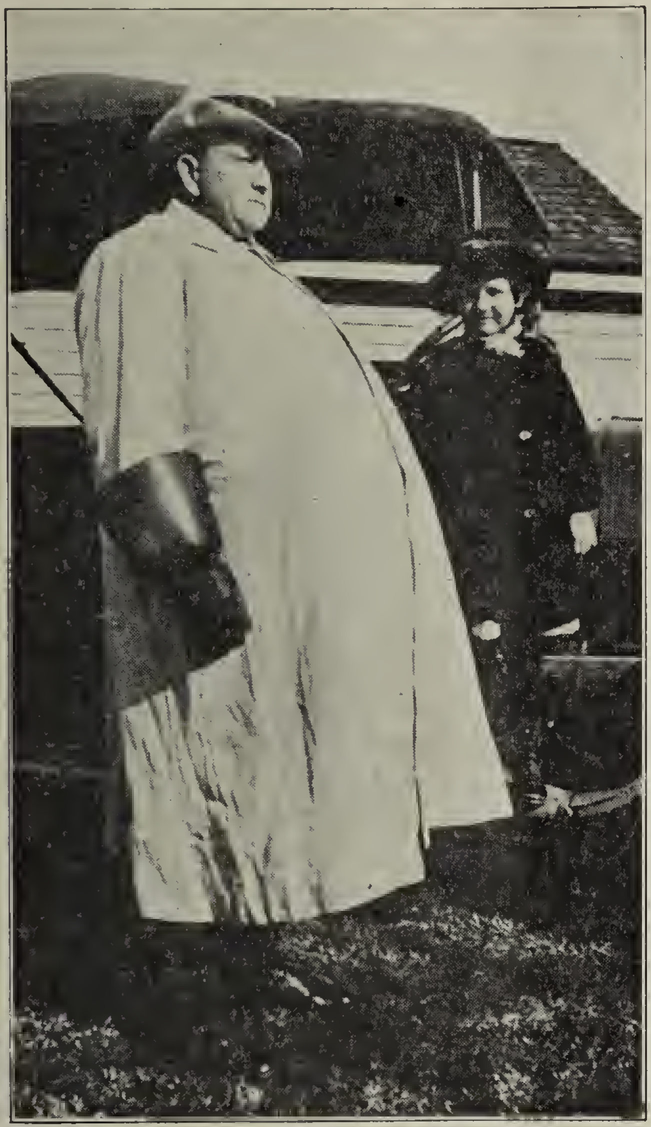
Answer—The volume of business in electrical porcelain has grown to considerable magnitude, but it is not practical to say here whether the demand is in excess of the productive supply. The value of the electrical porcelain output for 1917 is given as $12,636,217 as compared with about five million in prewar years, but there is a question as to how much of this increase is represented by increased value rather than increased production. Perhaps it is about evenly divided.

This seems to be a sort of specialized industry closely related to pottery. Ohio, New York and New Jersey produces about 75 per cent of the total output.

The clays used are of the Kaolin class and formerly were in the main imported, but as a result of co-operative work between the Bureau of Standards and the Bureau of Mines to develop satisfactory domestic material nearly half the manufacturers of this product are now using domestic clays. From now on, too, we expect to see a steady development in the use of domestic clays in this work till here, as in other branches of the clayworking industry, we will be independent of outside resources.

AN N. B. M. A. PUZZLE PICTURE.

WHEN WE RECEIVED the occompanying photograph we could not identify the party though we were told he was an old-time member of the N. B. M. A. It is not surprising, for in former years, when he was a regular attendant at our annual conventions, he was in the light weight class physically, weighing but little more than 100 pounds. That he has grown to such dimensions as the picture indicates seems somewhat remarkable, so at first glance, we were inclined to regard it as a camouflage picture. We are assured, however, that it is a bona fide picture of Harry L. Jacobs, of Suffolk, Va., as he appears today. He is now in the heavy weight class, he writes, tipping the scales at about 200, without any sample brick in his pockets. This is a remarkable testimonial to Mrs. Jacobs' culinary skill. The little girl shown in the picture is their daughter, Gertrude.


H. L. Jacobs, Suffolk, Va.

Mr. Jacobs, who is one of the leading brick manufacturers of Virginia, writes that business is good in that state, that they are sold ahead for several months and he thinks all the other brick plants of Virginia are running to full capacity with common brick selling at $16.00 f. o. b. plant, for hard, and $14.00 for soft brick.

Col. Edward Orton at Home.

The host of friends of Colonel Edward Orton will be pleased to know that he has retired from military service, and is again at his home at Columbus, Ohio. Before being mustered out, Col. Orton was presented with a Distinguished Service Cross in recognition of splendid services rendered during the war period. Mrs. Orton, who was stricken with paralysis some months since, has made a slight recovery, but is confined at home, where she is pleased to welcome her personal friends.

N. B. M. A. PERSONALS.

Fritz Salmen, of Slidell, La., and his family are touring through the West. Mr. Salmen writes from Yellowstone Park that he is in excellent health, and that he recently enjoyed a visit with John Cahoon at Salt Lake City, whose plant is up-to-date in every particular, and well worth a visit.

L. E. Rodgers, of the Rodgers Engineering Company, Chicago, Ill., is back at his office after a summer vacation spent at Atlantic City. He reports a satisfactory volume of business despite the labor troubles of which Chicago has been a strong center of late.

Warren de Rosay, general manager of the Corry Brick & Tile Co., Corry, Pa., reports a good volume of business, but considerable difficulty in operating the plant to capacity owing to the difficulty of securing sufficient labor. Otherwise he is all right and happy.

"Master" John W. Sibley, Birmingham, Ala., treasurer of the N. B. M. A., writes that in a business way all is well in Dixie Land. Mrs. Sibley was unfortunate enough to fall and fracture an ankle some weeks ago, but was fortunate enough to make complete recovery and is now able to navigate without assistance.

Walter Geer, president of the New York Architectural Terra Cotta Co., New York City, was a guest at The Clay-Worker sanctum recently. He reports a gratifying improvement in the building line and a consequent increased demand for terra cotta throughout the East. The volume of business of the New York Terra Cotta Company is taxing the capacity of the plant, notwithstanding the high prices prevailing.

William Schlake, president of the Illinois Brick Co., Chicago, and the chief executive of the Common Brick Manufacturers' Association of America, was recently appointed a member of the Commission to investigate conditions in the war area of Europe, and is now in France on that mission. On his return, the coming month, he will have some interesting information as to the brick and building situation over there.

Will P. Blair of Cleveland, the veteran brick paving poster, was in Indianapolis recently investigating the highway situation. Mr. Blair is advising the utilization of broken stone, so abundant and inexpensive throughout Indiana as a foundation for brick paved roadways. By its use, the taxpayer of the state may be saved many thousands of dollars, and have just as durable and satisfactory roads as by using the more expensive concrete base..

C. P. Mayer, president of the C. P. Mayer Brick Co., Bridgeville, Pa., and an ex-president of the N. B. M. A., recently made an unusual trip, motoring in his Cadillac from Pittsburgh to Macon, Mo. He reports that the trip was very enjoyable up to the Mississippi River District, where he encountered heavy rains, which made the unimproved roads well nigh impassable. The drive through Ohio, Indiana and Illinois was over excellent roads and while not trying to make a record his average time was about thirty-two miles per hour. He journeyed to Macon to get Mrs. Mayer, who has been in very poor health for some months past. As but little benefit was derived from her stay in Macon they both returned home by train.

BUILD WITH BRICK

CORRESPONDENCE

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Labor Situation Serious in the East.

My Dear Mr. Randall:

I regret I could not get to the American Ceramic Society midsummer meeting at Buffalo, as I took a few days' vacation up in Maine. We are busy at the plant and are sold up to January and February of next year. The only trouble is the labor question which in this part of the country is very serious. We are running about 80 per cent. of our capacity and could easily run 100 per cent., as they are building many houses in Philadelphia.

Yours cordially,
T. M. Dobbins, President,
Camden Pottery Co.

Brick Manufacturers' Association Exerts Good Influence.

Editor The Clay-Worker:

Business conditions in Los Angeles have progressed very much since the first of the year; in fact, within a very short time we expect the building condition will be back to normal and possibly will be above normal, owing to the location of a number of branch factories, large eastern concerns such as the Goodyear Rubber Company.

The price of our common brick is being maintained on a profit basis, namely: twelve fifty and thirteen dollars per thousand, delivered on the job in different zones, costing about ten dollars at the kiln.

We find that the Common Brick Manufacturers' Association of Los Angeles has produced a most pleasing business condition.

Very truly yours,
Los Angeles Brick Company,
L. S. Collins, Manager.

Brick Construction Work at Danville, Ill.

Editor The Clay-Worker:

You, no doubt, will be interested in the work now in progress and in preparation in this city. Public work is starting strongly here, with requests for paving, sewers, etc., coming in rapidly.

In the paving work we have now under construction about 17,000 square yards of asphaltic macadam pavement on Harmon avenue. Bids will be asked for in about a month for the paving of Cronkhite and Kentucky avenues—a total of about 4,000 lineal feet of 27 feet asphalt filled brick pavement, with a 4-inch concrete base and a 1-inch sand cushion. The following streets are in preparation, a number of which we hope to get through the court in time for construction this season: Perrysville Road, a little over one mile in length, pavement 27 feet wide, of asphalt filled brick on a 4-inch concrete base; 2,600 lineal feet on Chandler street; 3,500 lineal feet on Fairchild street; 2,300 lineal feet on West Winter avenue; 2,700 lineal feet on Sherman street, and 550 lineal feet on Mann street. All of these are brick pavements, with asphalt filler, averaging 27 feet wide and most of them are to have a 4-inch concrete base. There is also the matter of resurfacing one-half mile of 30 feet of Tarvia macadam on Logan avenue. Half of this needs scarifying, adding a little new material and repenetrating, while the other half requires just a little patching and surface treatment.

In the sewer work, we have under way the proceedings for putting in a sanitary sewer system in about one-half square mile of territory, using an Imhoff tank disposal. This is estimated at about $52,000. Then there is another section slightly smaller than this to handle, and a number of short runs for both sanitary and storm sewers.

In the matter of bridges, we have an agitation already on foot to replace our Gilbert street bridge, an old steel structure, with a modern reinforced concrete bridge, probably of the arch type. The length of this is 1,140 feet and the maximum height about 70 feet, built on about a one and one-half per cent. grade. I am now asking for bids on the painting and flooring with 3-inch oak lumber of the College street bridge—which is about 900 feet long, 65 feet maximum height and which contains about 240 tons of steel in the structure.

In the matter of the construction of our garbage incinerating plant, the work is progressing rapidly. Concrete footings are already in for the structure and forms are being set for the walls and upper floor. I expect to have our specifications for garbage hauling equipment ready for bids within two or three weeks, for delivery by September 1.

That is about the extent of the work now under way, but more is in sight and coming in every day.

Very truly yours,
Harlan H. Edwards,
Danville, Ill. City Engineer.

Opening in Arkansas for a Brick Plant.

Editor The Clay-Worker:

I have been trying to interest parties in Blytheville, Ark., in the organization of a company to manufacture brick and drain tile and have not been successful, inasmuch as there has been a failure here of a brick plant, through mismanagement, and I now take the liberty of writing you to see if you know of any one looking for a location, who is in position to take anywhere from $5,000 to $15,000 stock in a company.

This is an exceptionally good field, as there is not a brick plant between Memphis and Cape Girardeau, Mo., and this city has enough buildings in view to use five million brick this year, and the tile proposition is just ready to be developed as they are now completing a system of drainage canals that will give outlets for the tile systems.

If you can put me in touch with some one with the capital and experience, I will appreciate it very much. I have had the clays tested by the government, and also have had brick and tile made at a plant in Tennessee, and will be pleased to go into the matter and furnish information to any one that is interested. Thanking you in advance, I am,

Yours very truly,
E. J. Heaton.

Chicago Brick Company Changes Name.

Editor The Clay-Worker:

We desire to announce to the clay industry at large, through the pages of The Clay-Worker, that the name of the Kimbell-Hill Brick Company has been changed to Kimbell-Wheeler Brick Company.

This action was taken by our stockholders in recognition of the splendid work of our president, Mr. Burt T. Wheeler, who succeeded Mr. Martin N. Kimbell to that office upon the death of Mr. Kimbell in the spring of 1918.

Mr. Wheeler is strictly a Chicago product, having been born in this city in 1886. He is a graduate of the Chicago office of the Hydraulic Press Brick Company, where he spent eight valuable years. He assisted in the organization of the

Kimbell-Hill Brick Company in December of 1913, and served as second vice-president up to the death of Mr. Kimbell.

We would like to say further, that the officers and directors remain unchanged with Mr. Arthur W. Kimbell, vice-president and secretary; Mr. W. H. Dymond, treasurer and Raymond G. Kimbell the fourth director.

Yours very truly,
Chicago, Ill. Kimbell-Wheeler Brick Company.

Opportunity for Brick Plant Engineer.

Editor The Clay-Worker:

Enclosed please find our check of $2.00 as payment for our subscription to The Clay-Worker for one year.

We have just taken over the clay properties known as the Farmers' Clay Products Company, at Tekamah, Neb., and are reorganizing the same to an increased capitalization of $1,000,000.00, with the intention of also increasing the annual output from 10,000,000 brick capacity to 50,000,000 brick capacity, or its equivalent in hollow tile, drain tile, silo blocks and paving brick. The properties are underlaid with a shale clay, running from 80 to 100 feet deep, covering 35 acres.

The above mentioned deposit of clay is the only deposit of any quantity known in this section of the country, there being but one very small deposit of this grade of shale clay in the state of Nebraska.

We are desirous of getting in touch with two or three brick plant engineers, capable of drawing plans and specifications for our proposed new plant, with the idea of getting the most modern equipment of machinery possible.

Thanking you in advance for any information you can give us along this line, we are,

Yours very truly,
Nebraska Clay Products Company,
Omaha, Neb. By Thomas Young.

Building Operations Good in Virginia.

Editor The Clay-Worker:

Enclosed you will find check for The Clay-Worker.

Our labor conditions are better than last year, although no cheaper. Possibly a little better class of labor. Our help is mostly colored, and the high prices paid here by the government and lax method of work has been very detrimental to the colored labor. I doubt if they are ever as good laborers as before. We are doing everything possible to improve their condition.

Building operations here have been all that the brick men can take care of; in fact, we have been unable to supply the demand, and the prospects look good for some time to come. The government work in this section has made a demand for buildings of all kinds, and the high prices have not stopped the building, except possibly the investors.

The prevailing price here seems to be $16.00 for hard and $14.00 for salmon, at the plants, but costs are fully 100 per cent. above pre-war conditions.

Respectfully,
Nansemond Brick Corp.,
Suffolk, Va. A. V. Sturgeon, President.

Brick Business Booming in Arkansas.

Friend Randall:

Business never was better here than it is now. We are turning out from 200,000 to 220,000 brick per day, and are shipping from 20,000 to 50,000 more per day than we make ourselves. We are figuring now on increasing our capacity at Pine Bluff and Malvern 50,000 a day each, and 75,000 at Little Rock. In fact, the work has been started at Malvern and Little Rock and will be at Pine Bluff now soon. Brick are bringing at the kiln, $14 for kiln run and $20 for select reds.

Repairs and fuel are still advancing. One can hardly keep up with his repairs, for every time we get an invoice the price is raised about 10 per cent. Fuel is worth its weight in beer at present bootleg prices prevailing in this section. Taking it altogether, I think the company that does not increase its capacity at once is not going to be in the running long from now.

A brick house is cheaper than wood here, and they are now building of brick. May they always do so. Best regards to all the Randalls.

Yours very truly,
Little Rock, Ark. W. W. Dickinson, Jr.

Making 100,000 Brick per Day and Turning Down Orders.

Dear Mr. Secretary:

Enclosed please find check for $5.00 to pay our membership in the N. B. M. A. We are a little late, but guess it will be acceptable.

We are awfully busy, making from 80,000 to 100,000 brick per day, and turning down orders. We sell for $15.00 at the kiln.

Very truly yours,
E. C. Hilyer, President,
Raleigh, N. C. Cherokee Brick Company.

HOLBECK PULVERIZED COAL SYSTEM.

We are indebted to the Bonnot Company, Canton, Ohio, for a copy of a most interesting and beautifully illustrated catalogue on the Holbeck Pulverized Coal System, which gives much interesting detail in regard to the use of powdered coal in steel, cement and other industrial plants. In powder form, as used by the Holbeck System, the coal goes from car to furnace without being touched by human hand. The process is automatic, hence it is both a labor-saving and a money-saving operation, for where it can be used, a greater measure of efficiency is obtained in the use of powdered coal than is possible otherwise. There is a reason:

"The fundamental advantages in the use of pulverized coal are due to the coal particles being so finely divided that they readily mix with the oxygen for combustion, thus requiring only the minimum amount of air. With lump coal on the grate a large excess of oxygen is required to pass through the fuel bed as only a part of the oxygen can come in contact with the coal, and as this oxygen carries along with it four times its volume of inert nitrogen, this large volume of unused oxygen and all of the nitrogen must be heated to the temperature of the furnace; the effect being to reduce the flame temperature, and as these gases have large heat carrying capacity, they carry off and waste to the atmosphere large quantities of heat."

Because the use of powdered coal is economical, it is to be devoutly hoped that some inventive genius will devise a means of using it successfully in brick and tile kilns. As yet that has not been done. The Holbeck System is adapted to steam boilers, especially those of large capacity; also to annealing furnaces, ingot forge furnaces, reverberatory type heating furnace, sheet and pair furnaces, plate heating furnace, bolt and nut furnaces, and railroad shop furnaces. Any of our readers who are interested in any of the above lines can obtain a copy of the catalogue on application to the Bonnot company, whose ad will be found on page 107.

There is only a little bit of gain to be had from palming off a poor quality of paving brick, and against this there is a big lot of harm can come to the paving brick industry as a whole from paving a street with it.

CINCINNATI BRICK AND BUILDING NEWS.

The BUILDING SITUATION here is reported to be very good. We must, however, at this time consider the general situation as applied to almost every phase if not every part of the industry. Houses of all kinds have been scarce here. The outcome of the lack of house room has been a rather serious one and still on the other hand there has been the increased cost. The added cost of materials and the increased cost of labor have been of sufficient force to at least interrupt some of the plans that were figured on some time ago.

That is, it must be a certain fact that the added cost has had its effect on the public and the feeling of caution that has been only an educated idea made more notable during the war, has been carried into other plans and the ending of the war finds the general public still inclined to wait.

Building here has been fairly active and while the outlook is fair for a continuation of the same, the future must depend upon the price of materials and labor. There are a number of large projects under way and the plans indicate that the future will be as active as can be expected under the circumstances. There has been a much larger amount of building done here for the first seven months of the present year and this is a material help. The vacation of buildings by saloons has not hurt the business section, as most if not all of these have been rented by other industries and as in a large number of cases there is much in the way of improvement to be done, this helps to care for a fairly large amount of building material.

According to the report of the Building Inspector there were more than a thousand permits issued during the month of July, the total aggregating $1,562,890. When this is compared with only 919 permits issued for the month of July, 1918, with a total of $396,648, there is a material improvement noted. In July, 1917, there were 993 permits issued that totaled $707,615. In the first seven months of the year the permits issued bring the total to $5,137,675, for 6,798 permits.

The new standard size brick will be adopted here too as in other sections and the innovation will be a welcome one as it will do away with a large amount of waste and labor, and will be found helpful to both the brick man and the house builder.

The Cincinnati Model Homes Co., has arranged with Frank F. Hamer for the construction of the Syracuse and Washington terrace. It is said that about $50,000 will be spent in the building of homes for the use of negro families within the next twelve months. There will be a grouping of houses and flats and the work is to be started immediately. The construction will be financed by four citizens of this city.

The Globe-Wernicke Co., has let contracts for the largest factory addition to be constructed in this section for years. It will have a frontage of 1,300 feet on Ross avenue, north of the main plant. The general contract has been awarded to the H. C. Haven Construction Co., Reading road, and the improvement will contain a total of 195,000 square feet. It will be one-story of brick, and will have a depth of 150 feet. Harry Hake is to make the plans for the building. It is estimated that the improvement will cost between $400,000 and $500,000.

A combination skating rink and swimming pool is to be built in Walnut Hills. It will be in the vicinity of Gilbert avenue and McMillan street. Charles Skinner has been retained to prepare the plans. The improvement is estimated to cost about $150,000. It is hoped to have the structure completed by Christmas.

S. S. and G. H. Godley, architects, are preparing plans for the construction of the largest apartment building in this city. It will be a series of flats on Rockdale avenue, to cost between $400,000 and $500,000. The buildings will be 430 by 35 feet, and 65 by 122 feet.

A ten-story loft building is to be erected at the northeast corner of Canal and Plum streets. Plans for the same have been prepared by Dittie, Fahnestock and Ferber, architects, It is said that the work of wrecking the old buildings will be undertaken soon.

The Proctor and Collier Co. will within a short time begin to build the new plant on McMillan street that was planned some time ago. Elzner and Aderson, architects, have been asked to prepare the plans. The building will be three stories high, being 110 feet square. It will be of brick stucco and heavy timbers. The same architects are preparing plans for the building of a hospital at Clovernook Home for the Blind. A third floor will be added to one of the buildings. They will also prepare plans for several extensions to the Homestead Hotel, Hot Springs, Va., including a picture house, dining room and a cabaret hall.

George Brink, Price Hill, expects to spend about $50,000 in the building of homes for the market on a tract of ground at Warsaw and Laclede avenues. The Maisel Construction Co. has the contract to build a home for Mr. Brink to cost $10,000.

The William E. Dee Clay Manufacturing Co., with headquarters at Chicago, has opened an office at 406 Builders' Exchange Building. It is in charge of Joseph E. James.

A number of improvements are being made in the show room of the Purcell Brick Co., Mercantile Library Building, and the face brick display is one of the attractive features here now. Mr. Purcell said that the situation was very good only that it was difficult to obtain as much material as could be used to advantage. The situation is not so bad.

The F. E. Grand Brick Co. feel somewhat hopeful over the outlook. The company has been awarded the contract for the terra cotta and brick for the new building to be erected in Avondale, for the St. Xavier College. The company has recently become the local agents for the New Jersey Terra Cotta Co., New York, and will furnish this material in the above and Clay-craft gray ragland brick, too. Mr. Grand says that with the exception of it being hard to obtain material promptly the local conditions are very good now.

CINCY.

BOOK OF SMILES.

The timely quip in the current issue of the "Book of Smiles" is found on the front inside cover—"The girls evidently think that the freedom of the seas means a one-piece bathing suit." The issue also contains a series of "First Aids to Dry Rules," from which we quote:

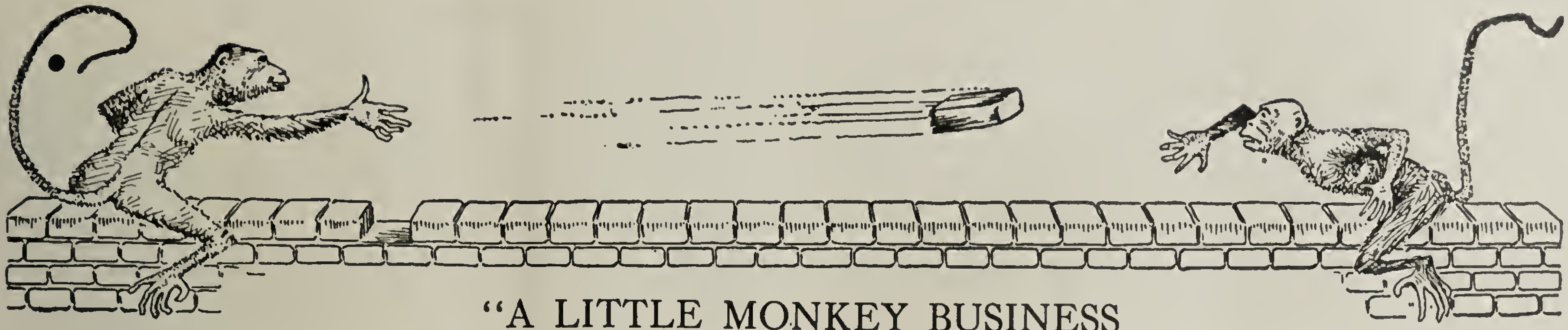
"Don't reach for the rail with your foot—soda fountains don't have them."

"Do not clink glasses with the lady next to you. She may have had all her training at a soda fountain and misunderstand you."

"Never say 'Prosit'—besides it's German."

"Don't leave your wife standing on the corner—you can take her with you to a soda fountain."

And there are others, all worthy of memorizing, as indeed are most of the contents of the book. Every brickmaker should always bear in mind that the Standard brick dryer is a one-man dryer, and that no expert is needed to operate it. For further particulars, write for a copy of the "Book of Smiles." Their ad appears on page 124.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

English as It Is Spelled.

If you and I and ewe and eye
And yew and aye (dear me!)
Were all to be spelled u and i,
How mixed up we would be!

They Don't Mix.

"No, Herbert," she said, in a low tone, "it is impossible. I fear to trust my future with you."

"And, why?"

"I have watched your conduct very closely. It lacks the mark of such devotion as my soul craves."

"Do I not come to see you four nights in the week?"

"Yes, but I have detected a calculating selfishness in your nature which I fear."

"What do you mean?"

"You have never yet failed to leave in time to catch the last bus."

"But that is only common sense."

"I know it is, Herbert, and therefore it is not love."—Chicago Journal.

A Fine Inheritance.

A man in Ohio had a strong civic spirit, and when he died he left all he had to the city. All he had was a wife and nine children.

The Mirage.

A man from a bone-dry Arkansas community went to a wet Missouri town before July 1 and was invited by an acquaintance to have a drink. In the saloon the friend asked:

"What are you going to have?"

"Have?" dreamily returned the visitor, blinking at the glorious array of barreled and bottled goods. "I ain't going to have nuth'n'."

"What do you mean, Gabe? You won't have a drink after coming all this distance?"

"Nope!" answered the Arkansawyer. "There hain't no such place as this. I'll wake up in a minute."

Hard on the Parisians.

Kate: "Did you have much trouble with your French while you were in Paris?"

Soldier Boy: "No, but the Parisians did."

Their John.

A colored minister of the Baptist church, in order to strengthen and confirm the faith of his congregation, took as the text of his discourse the first verse of the third chapter of Mathew: "In those days came John the Baptist, preaching in the wilderness of Judea."

"Oh," said he, " how I like to read these precious words in the Blessed Bible! You don't read anywhere about John the Presbyterian, or John the Methodist, or John the Episcopalian. No, brethern, it is John the Baptist."

A Mistake.

Tommy Atkins—'Ere, I say, orderly, I've got pains all over me an' all I'm gettin' is two or three little tablets a day.

Orderly—That's all right, my man; the medical officer is treating you for gastritis.

Tommy—Gastritis! I bloomin' well knew something was wrong. Why, I ain't been gassed.

Steadiness Personified.

Kronks: "I see you've got another brick setter. Is he steady?"

Kranks: "Steady! Why, if that fellow was any steadier he'd be motionless."

Accommodate the Cat!

The doors of a certain new house had shrunk horribly, as is the way of the modern door made of unseasoned wood. The builder would not send the joiner to repair them, so the householder tried the ironical method and wrote:

"Dear sir: The mice can run under most of our doors, but our cat cannot follow them. Will you please send a man at once to make room under the doors for the cat, and much oblige?"

Would She Get It Then?

"Miss Trippler says she wants to get a man's wages."

"Why doesn't she get married?"

Didn't Count.

Some doughboys were sitting around the camp fire swapping experiences. Each in turn recounted some hair-raising accident in which he had figured. Finally it came the turn of a chap who had traveled all over the world. They waited breathlessly for his yarn, but he declared he had nothing to tell.

"Haven't you ever had an accident?" they chorused in amazement.

"Accident? No."

"Never had anything happen to you?"

"Oh, a rattler bit me!"

"Don't you call that an accident?"

"Hell, no, the thing bit me on purpose."—Los Angeles Times.

A Question of Color.

Bobbie, disputing with his small sister:

"Fleas are black, I tell you."

Small Mary: "Not neither, 'cause it says: 'Mary had a little lamb, its fleas was white as snow.'"

Needed Watching.

Pickpocket (visiting friend in jail)—"I hired a lawyer for you this morning, Slim, but I had to hand him my watch as a retainer."

Pal—"And did he keep it?"

Pickpocket—"He thinks he did."

Camouflage.

If you see a complexion that's peaches and cream,
Remember things always aren't just what they seem;
Just take a good look and come out of your dream—
It's camouflage!

If the opposite player leans back in his chair,
Looks happy and whistles a popular air,
Why, just ask the dealer for all he can spare—
It's camouflage!

If you're touched for a loan by a friend who is flat,
And who'll pay "the day after or swallow his hat,"
Just borrow his watch till the day after that—
It's camouflage!

MILWAUKEE AND WISCONSIN CLAY NEWS.

REPORTS COMING in from every part of the state indicate that the clay industry is enjoying business of immense proportion. Building activities in every locality are mounting into round numbers and indications are that the year will close with a ten-fold gain over that done last year. Reports from clay product manufacturers and dealers state that they are finding a ready market for their wares inasmuch as construction work along the lines of commercial, industrial and public work has assumed proportions unknown for the past years. Building in Milwaukee is somewhat experiencing a slight handicap due to the strike which is now on in the allied building trades. However, local contractors anticipate the speedy adjustment of the strikers demands and the immediate resumption of building operations.

The amount of building done in Milwaukee during thet first seven months of 1919, according to reports compiled by Building Inspector W. D. Harper, was nearly three times as much during the corresponding period of 1918. The aggregate building permits which have been issued during the last seven months are valued at $8,207,787 as compared to $3,233,773 in the corresponding period in 1918. Permits issued during the month of July have amounted to nearly three times the amount during the same month in 1918, merely indicating that the operations are not spasmodical but in similar proportions to the gains experienced in the year thus far. Permits for July, 1919, are valued at $1,314,705, while the figures for July, 1918, were only $516,532. Every indication now is that the building operations in Milwaukee will run far in excess of eighteen millions.

Of the immense building operations now under way it is of particular note that very few buildings, residences or otherwise, are being built of wood. Brick is one of the natural successors to lumber, and because of the scarcity of wood, brick is automatically becoming the more popular material for the construction of a home.

The Stadler Bros. of Chicago have closed negotiations for the establishment of a large brick yard north of Two Rivers, on the Peter Schaff farm, where a brick yard was formerly operated. The deal includes the purchase of a forty acre tract. Stadler Bros. are widely known contractors and with their complete facilities which will be speedily moved to the new plant, products of the yard will be ready for early delivery and shipment.

The great demand from Northwestern farmers for drainage tile has resulted in a handsome piece of business for state dealers. County Agricultural Agent Paul O. Nyhus of Waupaca has ordered 88,000 feet of drainage tile, amounting to over twenty-two carloads for use by farmers in this vicinity. Mr. Nyhus also reports that scores of other farmers have requested drainage surveys in their attempt to bring into cultivation wet and poorly drained lands.

Wisconsin is already one of the most noted clay product centers in the Union due to the admirably suited soil for the making of brick. According to Assistant State Geologist E. B. Bean, Madison, who was in Stanley, Wis., checking up the findings of geological surveyors, he reported that exceptionally fine and large clay beds for manufacture of brick were found around Stanley, Wis.

The Northwestern Lumber Company operating a brickyard near Stanley, Wis., for the past several years is turning out an exceptional quality brick. A single order recently received from Park Falls calls for 800,000 bricks to be used in the construction of an addition to a paper mill. Officials of the company state that their plant has been operating to capacity and find it extremely difficult to level the demand.

Another incident which readily shows that the public is quickly being apprised of the superiority of vitrified brick over that of creosote block is the common demand of the citizens of Wausau in a petition asking that the council order that certain city thoroughfares be paved with vitrified brick. The petition was referred to the committee on paving, and at the next meeting will grant the prayer of petition and will instruct the board of public works to determine the width to be paved, prepare plans and specifications and report at the next meeting of the council. This petition requesting brick was from property owners between First and Third streets.

A signal incident as to the failure of creosote block as a lasting street paving is apparent when the city council of Wausau has ordered the wholesale repairing of the creosote block paving on Scott and Washington streets which was laid a few years ago. The block paving was satisfactory for a while but as soon as water got under the blocks the streets became a succession of humps. Many of the blocks are badly cracked and chipped making it impossible to plug with filler so as to stop the drainage of water to the sand cushion.

Carl Lotz of Wausau was awarded the contract to pave Clinton street, South First avenue and the new falls bridge with brick but is experiencing considerable difficulty in securing desirable quality material for same, which is solely due to the active building operations throughout the state. All indications point that the public and city and county officials are quickly acquainting themselves with the superiority of vitrified brick for road purposes deeming it unwise, far more expensive and less satisfactory to experiment with other materials.

A. BADGER.

NEW YORK AND VICINITY.

ACTIVITIES up the Hudson are about normal in most localities. Some yards are not running to capacity, but a great many more are, and will be obliged to run to capacity all the season in order to take care of their contracts. Demand is steadily increasing and at $18.00 to $20.00 in some localities and $16.00 to $17.00 in others the situation offers opportunity for the yards to make a fair return on their investment and their labor. Some of the yards are driven to their capacity and beyond, while others have less to do, but considering the supply of labor the situation is looked upon as good. The strike of the captains who towed the brick to New York caused some trouble for a time, but because it would increase the price of brick the demands were not granted and other means were taken to get brick to New York.

Building operations in and about New York are better than they were, but while permits are up to near record figures actual building is light and the conditions which govern are not favorable to much development at present. Plasterers are out and have been for nearly two months and are seeking to get all the rest of the building trades out, but thus far the attempt has not been as successful as might be wished. However, the situation doesn't appear to get worse and perhaps some basis of settlement will be reached or the strike will gradually trail away into nothing.

BURTON.

THE NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES.

The fifth annual gathering of the National Exposition of Chemical Industries will come to Chicago, where it will hold forth in the Coliseum and the First Regiment Armory the week beginning September 22. Preliminary plans and roster of exhibitors indicate that it is to be a great occasion, well worth going some distance to see.

PACIFIC COAST NEWS.

A SPIRIT OF OPTIMISM is decidedly in evidence in the local offices of those connected with the brick and clay industry. During the past month, business is said to have increased materially and from present indications, conditions will improve steadily from now on. Building contracts calling for clay products are growing in number, thereby necessitating an increase in factory output. According to the trade in San Francisco the chief difficulty at present is getting hold of sufficient skilled labor. Wages are very high and the workers independent, so much so, in fact, that a manager of one of the well known concerns operating a plant in the Bay region stated that the utmost diplomacy has to be used in securing a force of competent workers. Whether the labor situation will grow into an even more serious handicap than it is at present is hard to determine. Opinions differ widely, but all hope that the same results will be accomplished in the end—that readjustments satisfactory to both employer and employe may be put into effect in the near future.

The Port Costa Brick Works is one of the local firms which is pressing its factory for fulfillment of several large orders. The plant is now running full blast in order to get the stuff ready for promised delivery dates.

Orders for shipment to the Hawaiian Islands are said to be arriving in increasing volume in the offices of the McNear Pressed Brick Company of this city, where a considerable amount of commercial building is on the boards. Besides this exporting, the local firm is delivering, as fast as factory production will allow, to various points in California, as well as to local yards and contractors.

Of deep regret to the building trade of San Francisco was the untimely death of George A. Dodge, local architect and for the past few years, manager of the Building Material Exhibit at 77 O'Farrell street. Mr. Dodge's death was the result of an automobile accident in which the machine in which he and Robert Oliphant, manager of the Ralston Iron Works, was hit by a Southern Pacific train, killing Mr. Dodge instantly and serevely injuring Mr. Oliphant. The deceased is survived by his widow.

Several members of the trade operating in Southern California have visited in San Francisco recently. Howard Frost, president of the Los Angeles Pressed Brick Company, made a combined business and pleasure trip here recently and spoke of the rapid rate at which business is increasing in the South. Prices of the products of this concern have been gradually increased from 10 to 35 per cent over pre-war prices due to additional cost of labor, fuel and supplies.

James H. Hill, president of the Alberhill Coal & Clay Company of Los Angeles, an organization closely allied wtb the Los Angeles Pressed Brick Company in that it supplied practically the entire amount of raw material used by the manufacturing concern, was also a local visitor. He made a thorough investigation of conditions in this territory.

Gus Larsen, superintendent of the Los Angeles Pressed Brick Company, has been devoting a good part of his time recently to affairs in the Northwest. On account of the closing down of a number of plants in that section of the country, it is understood that the southern factory is contemplating taking charge of the reopening of several of the better locations.

The Earth Products Company is the name of a new manufacturing concern located at Vancouver, Wash. The company is a $100,000 corporation, backed by Clarke county capital, and it is the intention of the officials to expand the operations of the organization as fast as possible. Machinery has been installed in the present plant at Fifth and Washington streets and manufacturing will commence immediately. A variety of silica discovered in the hills north of Underwood in Skamana county will form the base of the materials to be used by the company. The Board of Directors is composed of the following: W. S. Wood, E. N. Livermore, F. E. Cooley and Dr. R. D. Wiswall of Vancouver; E. J. Martin of La Center, and Hugh McMaster of Camas.

The plant of the Pacific Sewer Pipe Company at Corona, Cal., was entirely destroyed by fire recently, resulting in an estimated loss of $175,000. It is understood that a new plant will be erected immediately.

If consistent rumors are any indication of truth, an increase in price of a number of brick and clay products may go into effect in the near future. At the present time, the list of local prices is said to be lower than any other city but on account of steadily rising production costs, it will be necessary to effect a higher scale of prices.

Architect J. A. Magee is preparing plans for a five-story brick apartment house which will cost about $35,000 to build. This is to be located in Post street, while a second building also designed by him is to be erected on Nob Hill at an estimated cost of $100,000.

A six-story apartment building is going up on the northwest corner of Geary and Taylor streets, to be constructed of brick at a cost of $150,000.

Plans for a five-story and basement brick apartment house costing in the neighborhood of $55,000 are being prepared by Architect E. E. Young.

Out of town building is also progressing rapidly. The valley sections of the state are already deriving benefit from the prosperous condition of the agricultural districts, thus stimulating building to a noticeable effect.

A contract of considerable size was recently secured by the W. E. Kier Construction Company of San Diego, Cal., from the U. S. Government for the construction work on a new hollow tile administration building at the North Island Naval Station. The cost of the building is to be $203,394.

White glazed brick is to be sed for the ornamental front of $30,000 brick garage to be erected in Van Nuys, Cal.

C. L. Passmore of Los Angeles, Cal., recently presented the lowest bid for a tile roofing contract for the Merced High School group. The amount under consideration is $5,889.

Oxnard, Cal., is to have a new one-story brick theater and store building. Plans are being prepared by Architect H. H. Whitney of Los Angeles, outlining an expenditure of $35,000.

Hollow tile is to be used in the construction of a one-story building for the Knight's school district at Grafton, Yolo county. The estimated cost of this job is $12,000.

San Francisco, Cal. SUNSET.

THE AMERICAN PICNICKERS.

Under the above head, Frank L. Hopley, the publicist of the American Clay Machinery Company, Bucyrus, Ohio, tells in a quaint way of a program of entertainment enjoyed by the employes of the American Company in an annual holiday spent at Cedar Point on Lake Erie, where they disported themselves as summer pleasure-seekers are wont to do. The program is cleverly unique, and we presume Frank will be pleased to send a copy to any one requesting same, as long as the supply lasts.

REPRESENTS CELITE PRODUCTS.

Mr. Vincent A. Lambiase, who has for a number of years played an active part in the sales promotion work of the Celite Products Company, will represent that company in the Bronx, Brooklyn and Long Island districts. Mr. Lambiase's knowledge of the company's products (Sil-O-Cel for heat insulation and Filter-Cel for filtration) will enable him to amiably handle the wants of the company's customer's and prospects in that territory.

THE CONTINUOUS DOWN-DRAFT KILN.*

The Universal Kiln of the Future for the Clay Products Industry.

BEING INVITED to exhibit model of my continous down draft kiln at your convention, I very much regret circumstances have prevented me doing so. However, I am writing a short article on the subject which I trust will interest you and which Mr. Thomas Kennedy, vice president and general manager of the Dominion Sewer Pipe and Clay Industries, Ltd., of Swansen, Ontario, has very kindly promised to read. I would have much preferred to have been present to thoroughly explain and demonstrate to you the working of the kiln and trust some of the members will visit me at an early date, which I am sure will be to their knowledge and advantage. I regret to bring myself so prominently before you in my paper, but do not see how I can give you the history of the invention of the kiln without doing so, as it is my intention to deal only with the question of clay products, burning which you are all agreed is the vital factor in the industry, between success and failure, strange, but nevertheless true, that one of the oldest trades known to man should have made such little progress in its most vital and important particular. We read of bricks as the building material of the ages from time immemorial, and being burned in the old up-draft or scove kilns as they are called, and I have no hesitation in saying there are more bricks burned today in the old up-draft kilns than in any other kind. Why? not because of its economy in fuel, not because of its high percentage in A-1 goods burned, but because of its simplicity. It is more cheaply constructed, more comfortable and sanitary to work in, more quickly burned, cooled, filled and emptied than any other kilns hitherto invented, and its advantages, outweigh its disadvantages.

Next comes the periodical down-draft kiln, so called because the fires enter over a baffle wall and out through the floor of the kiln. There are numerous patents on inventions in floor, flues, drafts, furnaces, etc., in these kilns, but not one of the numerous fads and inventions have saved the cost of operation and fuel 50c per 1,000 brick, or 24 hours in time in the burning of the goods, and are no improvement upon the first simple down-draft kiln invented, and there are more of the old design down-draft kilns today in operation than any other. Why? The same cause as in the old up-draft kiln, simplicity of first design. In the old days when coal and wood were very cheap the enormous waste in heat did not matter, but as wages increased and coal and wood got dearer, brickmakers began to look for more effective and economical systesm of burning. The clay products industry has never been a very lucrative business, with the result that capitalists have never been attracted to the trade, and I am afraid there are not many capitalists very enthusiastic about the trade at the present time, neither will they be till the manufacture is more reliable and a better return made on the capital invested, than has hitherto been the case. I fancy I hear you say: All very well to write and talk, but what's the remedy, tell us and show us.

We have spent and sunk millions of dollars in improvements in kilns, installed costly machinery, paid the best professional men we know, spent fabulous sums on plants never dreamed of in the old days, and yet we cannot make money and produce the goods cheap enough for universal use and the manufacture is more costly today than ever in its history, and very few individuals or companies are making fortunes in the trade. Again, I hear you say, "Why," and again I say, simplicity. You say what can we simplify? I say burning in conservation and utility of the waste heat. The future success of the industry lies in that and that alone, and there is but one kiln and one system that will do it, and that is the Continuous Coal-Fired Kiln. A kiln that possesses all the advantages of the open top up-draft kiln, sanitary to work in, easy to fill and empty, a kiln that is smoke consuming and loses no heat in operation, or very little.

You say continuous coal fired kilns have been in use a long time. The principle is right, but they do not fulfill our requirements. We cannot vitrify the goods or salt-glaze in them, it is almost an impossibility to raise 2,000 degrees of heat in them. The bottom gets overburned and the tops underburned, they are slow in operation, very hot and uncomfortable to work in, etc. I grant you all this, but they have more nearly approached the ideal and are the most economical kilns in fuel and operation ever invented for any ordinary class of goods. It has its disadvantages, but its advantages far outweigh its disadvantages. Does not the up-draft kiln overburn the bottom and underburn the top, and is it possible to obtain as much heat in it as in the continuous top fired kiln, and does not the down-draft kiln overburn the sides and top and underburn the bottom? Is not the top 15 course of bricks burned and finished 48 hours or more before the bottom 15 courses?

Now, it is very evident if the goods are burned and finished, which they are both at the top and the bottom in the up-draft and downdraft kilns, it is very evident something is wrong in the distribution of the heat, or the whole kiln would be burned and finished at the same time and from two to three days in time saved in every burn. Think what that would mean in the saving of coal alone, apart from the reduction in kiln capacity required in dealing with the output of the work and in addition the heat from the burning chambers all being untilized and the smoke consumed. If this system was universally adopted in the trade that stands third on the list of trades in coal consumption in the U. S. of America, what would it mean?

It staggers the imagination to think of it, the saving in coal alone would pay a dividend in all the brick works in America, and the trade would increase by leaps and bounds. The building trade, I believe, ranks in wealth and volume second only to agriculture, if agriculture can be called a trade. So look at the immense trade in the very near future for the clay products manufacturer. I say this is to be done, and will be done, in the continuous down-draft coal fired kilns. No doubt, it will surprise many of you to know that the continuous down-draft kiln is no new invention. Continuous down-draft kilns were in use burning salt-glazed goods in England more than fifty years ago, and may be in use today for all I know.

Four patents have been granted on continuous down-draft kilns, the patents being obtained for the protection of the work where they were in use, and I never heard of the plans ever being allowed to be used or anyone to see the kilns at work were interested in the trade. So you see the continuous down draft kiln is not a new theoretical idea. I know the majority of clay products manufacturers are very skeptical about any idea of burning periodical down draft kilns continuously, which is not to be wondered at, considering the vast amount of money that has been spent in the past which has ended in failure, and often ruin to the properietor. The periodical producer gas system was prophesied to be the panacea for all the ills in clay products burning. I know of continuous gas fired kilns that have cost more than $200,000 to erect and equip, but yet some of these kilns will do no more than the continuous coal fired kiln built at a quarter the amount, and I have no hesitation in saying that one of these kilns of equal capacity can be built at a quarter the cost and burn more goods with about half the coal it takes to produce the gas alone, and I have yet to learn that any of these kilns have ever paid interest on the money they cost to erect and equip. Then again take the costly gas fired tunnel kilns and the railway tunnel kilns. I have yet to learn that they answer all the requirements like the old down-draft kilns.

The dream of the ages in the clay products industry has been to save the enormous amount of heat which goes to waste through the flues and up the chimney into the open air in the down-draft kilns, and is still the dream of the clay products manufacturer today. I have often heard the remark: "We can do all we want in these kilns, if we could only reduce the coal bill." There is but one way to reduce the coal bill, and that is preserve and utilize your waste heat. You, again say, "Yes, but how are we to do it and manipulate the kilns as we do today." I say it is to be done. There is nothing impossible, if the principles are right. In the continuous compartment kiln, which you admit it is, then the difficulty is easily surmounted.

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*Paper read before the National Canadian Clay Manufacturers' Association, at Montreal, by H. Webster, Newport, Ky.

Many years ago, at my works in England, I used to watch the heat going to waste in the old kilns and dream of the day when that would all be utilized and think if I could only save that I would soon be a rich man. For several years I almost lived on the works experimenting and watching day and night.

I tried most of the systems that are very much lauded today and some are patented with very slight structural alterations, but none were satisfactory to me, or successful, and I had to go back to the old systems, much to my discomfiture and loss of prestige among the workmen. I believe I experimented on about eleven kilns in all, but still I felt convinced it was to be done, and I was more determined than ever to master it, if possible, if it ruined me, which it very nearly did. I visited every works I could get permission to inspect in England and Scotland, and engaged burners from the most up-to-date works I could get them, men used to burning every class and description of goods, and when I used to say the waste heat ought to be saved and utilized, and the down-draft kilns burnt continuously, they used to smile and tell me I was dreaming. I was dreaming, it was true, I obtained some very valuable information from them, but the dream never left me.

In the early part of the year 1893 there was a coal miners' strike in our district, which lasted all through the summer months, and we had to close down the works for want of coal. When the strike ended and the mines reopened, coal more than doubled in price, and strange as it may seem, the price of common brick fell 2 shillings and 6 pence per thousand, or 60 cents in American money. I tried to sell out, intending to give up the trade as it was impossible to make any money. A friend of mine came to me and asked me my troubles. I told him. He said is there no remedy. I said, yes, if I could afford to build a continuous kiln, but I had sunk all my money in the concern and could go on no longer. He said he would lend me the money to build one and take security on the works. I accepted his offer and built a Hoffman type continuous compartment kiln at a cost of about 3,000 pounds of $15,000. The plans costing me $1,000 or 200 pounds.

My troubles were not over by a long way . All the old burners were prejuiced against it, and for some time we did no good with it, and my partner, who had been in the business all his life, drew out and left me to it. I went on the kiln and took the entire management of it, untill I was thorough master of every detail and then my troubles began to disappear and success crown my efforts. We burned the goods in this kiln with much better results, with less than 400 pounds of coal dust per 1,000 brick (English size bricks are 9x3x4½) against from 15 to 17 cwt. of mine run coal in the old kilns. I began to make money rapidly and was not long before I commenced to build kiln number 2, pulling down several old kilns and using the old bricks up. I introduced some very valuable improvements in this kiln. My only mistake being building the chambers too large, a mistake I am afraid a great many make in the kilns of today. It was in this kiln I experimented on the continuous muffle chambers which we burnt very successfully. We were doing a considerable trade in terra cotta goods at the time, which we burnt in these chambers. I could not experiment on continuous down-draft burning in these kilns, as we did not use side furnaces, all the firing being down from the top through the feed pots, or the continuous down-draft kiln would have been in almost universal use long ago. It was this kiln, with some further improvements added on, which I obtained by first patent in the United States of America.

In the early part of 1896, the banner year in the bicycle industry, I was offered a large order for 50 million of common bricks, 3 million facing brick and other goods for the erection of 1,000 houses, and a large stamping works, and tube mills, and I had to refuse the order as I was not in a position to execute it. However, the syndicate came to me and offered me a big price for my brick works, which I accepted and my experimenting days were over forever I thought then, but it was not to be. We built several more large continuous kilns, running two fires in them and burning about a quarter of a million bricks in each kiln per week. About this time I decided when my agreement was up with the company, I would visit America where I had some relatives who told me big money was to be made in the brick business. After I had been in America some time I obtained a position as plant manager at a large paving brick works where the burning was being done by producer gas which had been a failure from its installation. I soon increased the percentage of A-1 bricks of 50 per cent, and eliminated cull brick altogether.

I then made very exhaustive tests and trials with coal fired kilns and producer gas fired kilns, and the tests were so much in favor of the coal fired kilns that the board of directors decided to scrap the producers and reconvert all the kilns to coal-firing again. The old dream of the continuous down-draft kiln was ever before me, as I was more than ever convinced that was the only system on which a brick works could be run successfully, and I was more determined than ever to solve the difficulty, as there was no doubt in my mind about it.

The following year I severed my connection with the company and decided to devote my future to continuous coal fired kilns. The late Mr. W. B. Kincaid, who was an enthusiast in continuous kilns and the clay products industry, joined me in the enterprise, but the poor fellow, as some of you are aware, fell a victim to influenza last October, and died from pneumonia after a few days illness. The world war set the clock back for brickmaking, as well as many other trades for a year or two. We attended the N. B. M. A. at Indianapolis in February, 1918. I mixed a great deal with the members, obtaining all the information I could in the buttonhole talks, which confirmed my opinion more than ever that the only kiln for the future was the continuous down draft, as none of the other systems were in very great favor, and the down-draft system stood alone as being the best system for burning all kinds of clay products. Upon my return home from the convention, I began to sketch plans from memory of the muffled chambers I burnt years ago in the continuous compartment kiln, and I instantly realized my dream of years was solved, the continuous down draft kiln. Mr. Wilton P. Rix, for many years ceramic specialist for Doulton's of London, one of the largest, if not the largest, firms in the world in glazed wares, often called upon me to discuss the continuous down draft kiln.

He was very enthusiastic over my experiments, and brought me samples of goods to burn. He was as convinced as myself it was to be done, and if he is alive today no one will be more delighted at my success with it than he will. He often used ti say to me "Webster, when the continuous down draft system is solved, it will completely revolutionize the clay products industry, and what a trade it will be." He was a dreamer, too, and I hope he is still alive to see his dream fulfilled. However, as I said before in the year 1896 I sold my works in England to a large company of which I was made Managing Director, and turned my attention solely to capacity and economical production. In April last year I took my plans of the continuous down draft and continuous muffled kilns to Messrs. Allen & Allen, the eminent patent attorneys of Cincinnati, who at once pronounced them patentable. They applied for patents in the United States patent office, and in six weeks received a reply saying with slight alterations the patents were allowed, making four patents allowed me on continuous coal fired kilns in one year, which I think is a record in the history of the burning in the clay products trade. I shall be pleased to give any information to any clay products manufacturer, who is interested and show complete models of the kiln, and answer any questions put to me.

If I do not reap very much pecuniary benefit from the greater part of my life's work, I have at least the satisfaction of knowing that the future generations in the clay products industry will have considerably less troubles and trials in their trade than their forbears, which should make their lives pass more comfortable and pleasant than they used to be in the bygone days of their fellow craftsmen.

Gentlemen, from the bottom of my heart I wish you all success and if any advice of mine will be of any service to any of you at any time, I will willingly give it to you freely.

AMERICAN OR PROVINCIAL—WHICH?

An editorial published recently in the Fort Wayne (Ind.) News and Sentinel gives a very good conception of that insular attitude which has been one of the chief obstacles to be overcome by those who have been endeavoring for many years to show the American people the future of highway transportation and the need for a national plan to provide the interstate highways which would meet the demands of the future.

The attitude taken in the following editorial is at this time exceptional. The war did much to eliminate such sectionalism as existed in 1916—or perhaps a better word for it is provincialism—and substituted, thank God, in nearly every nook and corner of this vast land, a broad gauge Americanism for that picayune sentiment of small town satisfaction and insularity which is reflected:

"It is not through the construction of such highways as the Lincoln Highway that Fort Wayne will prosper. Those are all very well for the tourists, but they benefit this city only in so far as they connect us with tributary towns. What the people of Fort Wayne should be interested in is not the construction of these through thoroughfares, therefore, but rather the building of good roads to nearby towns. It is our part to see that we have the proper sort of highways connecting this city with all of the places within a radius of 75 miles and to be interested in the great thoroughfares only as they are incident to such connections. What boots it to us, for instance, whether the Lincoln Highway is good, bad or indifferent 75 miles from this city? Our concern is merely with that portion of the highway that brings business to this city. Any thoroughfare that connects us with any other town or city within trading distance is a good thoroughfare even though it ends in that town or city. Let no one get any other impression."

As we have remarked, the above attitude is conspicuous from the very fact of its being happily unusual. There was a time when communities could, in regard to many other matters besides roads, circumscribe about themselves a circle beyond which progress or affairs did not concern them. Whether this circle be the five miles of the old horse and buggy days or the seventy-five miles suggested by the editor of the Fort Wayne Independent is immaterial. The spirit remains the same. A narrow spirit. A provincial spirit. An un-American spirit. A spirit which would build a Chinese wall around its horizon and consign to the limbo of things beyond its concern all progress or advancement beyond that wall. The time has passed when American cities, large or small, can afford to thus wall themselves in and feel that the circle of their interests is confined within the radius of a day's motor journey.

On Fort Wayne streets may be seen the license tags of a dozen states on any day, just as Indiana tags may be found without difficulty on the roads of Maine and Washington, California or Texas.

Happily, we know that the above editorial is as unrepresentative of the spirit of Fort Wayne as it is of the American press generally. It is only reproduced as an excellent specimen of that dying spirit with which in every section of the Union those of vision, with nationally important plans to promote, have had to contend. We do not think that even the editor of the Fort Wayne Independent would advocate now that attention be concentrated upon the improvement of the railroad lines extending out of Fort Wayne, but to the extent of 75 miles, and that so far as the interests of Fort Wayne are concerned the railroad system of the United States might go to rack and ruin beyond these limits without causing undue perturbation in that locality. Poor mortal—he is so far behind the procession that he does not and cannot see that America's Highway System now gradually rounding into being will ultimately, as a result of the efforts of those whose vision has no 75-mile limit, be of as vital importance to the people of the United States as America's railroad system is today.

Today is indeed the day of the automobile—and the motor truck. Neither is confined in the limit of its usefulness to a one day's journey, a fact which the United States Government is now endeavoring to impress upon the people of the country through the great transcontinental motor convoy being sent over the Lincoln Highway—and through Fort Wayne—to San Francisco by the War Department.

POTTERY EXHIBIT AT MILWAUKEE OF GREAT BEAUTY.

Beauty-lovers will find much to delight the eye in the present exhibit of Pewabic potteries at the Milwaukee Art Institute. In glaze, color, texture and form there is little that could be excelled by the best European ceramic workers. A wide variety of shapes, both classic and modern are included; the colors range from the richest oranges and deepest blues to soft purples with the bloom of a grape upon their luster; or again may be seen the deep glowing tones of coral and emerald.

Harmonious combinations have been obtained by using several colors, blended in an unusual luster ware, resembling the antique vases which owe much of their beauty of color to the centuries they have lain in the earth, toned and acid bitten by a natural process.

Beauty is Retained.

These modern vases have a similar irridescence which is one of the secrets and beauties of Pewabic ware. The feeling of the potter's wheel which is lost in so much of our modern pottery, has been retained in many of the examples. This, like the brush work of a great master in painting, is one of the precious things to preserve, for otherwise a machine-like regularity is the result, with every bit of the potter's own individuality and turning lost. Neither has the beautiful casual quality of a dripping glaze or color been left to escape—a transient beauty caught and held by the firing.

One of the greatest delights to the soul of the artistic potter are the miraculous accidents that sometimes fall upon his work; his highest technique and analysis is required to duplicate these effects so that they will not be lost to ceramic art. There is always enough variety and chance to make each piece individual, and a breathless moment always comes to one who is waiting for the kiln to be opened to see what "accidentals" have resulted and whether the potter's clay has become a masterpiece in color and texture as well as form—or whether it be scrapped as unworthy of the signature.

SOMETHING NEW FOR POTTERS.

As the readers of The Clay-Worker will note when they read the interesting account of the trip through the Buffalo Pottery on a preceding page, that enterprising firm has installed a Sagger press, devised and made by the Crossley Machinery Company of Trenton, N. J. The latter firm has a number of new devices, all of which are illustrated in their new catalogue which they will be pleased to mail to any clayworker desiring same. See ad on page 176.

Sometimes what looks like a stumbling block in the way can be turned into a stepping stone to progress.

U. S. IS MAKING HIGHWAY REPORTS.

Service Starting on Eastern Section of Lincoln Way Brings Demand for National Extension.

HIGHWAY reports as well as weather forecasts may soon be made a phase of the work of the United States Weather Bureau. This service to the public is already provided in several states and so valuable has it proved to be that a national demand is springing up for its extension.

The service of the weather bureau in reporting highway conditions was first inaugurated on the eastern section of the Lincoln Highway in the winter of 1917 and 1918 when the bureau in co-operation with the State Highway Commission of Pennsylvania established and maintained the initial project known as the "Highway Weather Service."

The project grew out of war conditions as related to motor truck service in the transportation of Government supplies over the Lincoln Highway between Pittsburgh and the Atlantic coast. Its activities consisted of daily reports from a number of points along the route as to the state of the road and the volume of rain or snowfall which might interfere with the heavy trucks.

Reports were made by Assistant Superintendent of highways and were sent to the official in charge of the weather bureau office at Pittsburgh who bulletined the information and furnished it to newspapers for publication. That official also issued warnings of heavy snows for that portion of the road crossing the mountains of western Pennsylvania, which were telegraphed to the State Superintendent of Highways at Harrisburg for the benefit of all Lincoln Highway Traffic.

This unique service, originated by war necessity, resulted in many requests for the establishment of the same service at other points along the Lincoln Highway and other main roads. In fact, the weather bureau has been urged to extend the work throughout practically all sections of the country. The service is particularly valuable on long routes such as the transcontinental highway where through traffic requires information as to the condition of the road ahead, particularly where much construction is going on and where heavy rains or snows are liable to impede traffic.

BOOSTING COMMON BRICK.

Ralph P. Stoddard, secretary-manager of the Common Brick Manufacturers' Association, and those associated with him in the active management of the affairs of this organization, in Chicago, are now getting into action in good shape and sending out some inspiring literature.

They have devised and adopted a very striking trade mark for common brick and in addition to some interesting literature for the trade for developing interest in the association and its efforts, they have launched a new publication called "Building Economy," the purpose of which is to furnish propaganda to promote brick building among building contractors and the public at large.

They made a fine start and among things in this first issue of the new brick boosting publication they have called the turn on the propaganda of the lumbermen on the relative cost of brick and frame walls. Figures compiled by them show that in Chicago the cost of 100 square feet of frame wall is $40.90 where the total cost of a solid brick wall is only $41.31. In a word their figures show that brick building is as cheap in first cost as frame building as well as much more economical in the long run.

The most imposing and pretentious of all the various publications sent out is a giant size prospectus for distribution among the brick manufacturers telling in detail about the national campaign of education of exploitation of common brick and graphically illustrating how the work is to be done. This imposing prospectus will likely be received by every brick manufacturer and it should be studied and preserved for future reference as it furnishes an interesting departure in advertising efforts in connection with brick. It involves the use of books and house plan and contains advertising ideas and subject matter that should prove of great value to each man locally as well as effective in a wide campaign of publicity planned by the association.

POSTING A BRICK "INVESTIGATION."

It is interesting to note that a retail lumber firm, the Peter Vredenburg Lumber Co., of Springfield, Ill., has gotten out and made use of one of the most interesting posters of the day in connection with the "Build Now" movement. Their blanket size poster contains a brief report from the Illinois Legislature Investigating Committee on the prices of building material. And right in the middle of this poster is given the report of brick, which reads as follows:

"The committee finds no evidence of a combination of paving brick manufacturers. Competition between the paving brick and cement manufacturers has resulted in a price for paving brick at a point as low as paving brick can be sold at a reasonable profit.

"Very extensive investigations of the cost of manufacturing common brick were made by the commission. Brick manufacturers furnished the commission with all data, books, accounts, reports and calculations asked for; in addition, they furnished upon request manufacturers' cost sheets and audits of certified accounts for the years 1912, 1913, 1916, 1917 and 1918, for the information of the commission. Estimates of costs for the year 1919 were also submitted. An examination of the audits of the companies made by reputable certified accountants, in the usual course of business, for the years 1917 and 1918, showed beyond question that losses were sustained. We have been informed by the brick manufacturers that brick could not be sold for less than present prices without depriving the manufacturers of reasonable profit. This we are not prepared to dispute. The commission has been unable to establish the evidence that illegal combinations exist to regulate the price of common building brick.

The only reason we can give the public is that with practical capacity production, there might be a slightly lower price for common building brick."

COST COMPARISONS.

One reason why comparisons are so often odious is because people set out with malice and forethought to make them so. And another old wheeze that we are reminded of by some comparative cost figure going the rounds of the lumber papers as between lumber and brick costs in construction, is that figures won't lie, but liars will figure.

The figures in question show the following comparative costs per 100 square feet of wall construction:

Wood frame construction	$35.32
Frame construction—stucco on wood lath	39.01
Frame construction—stucco on metal lath	41.78
Brick Veneer construction	73.82
Solid brick construction "A"	80.34
Solid brick construction "B"	58.64
Hollow tile construction	55.22

These figures are based on costs of material and labor at Chicago. As to whether they tell the exact truth in the matter of cost we will leave for the Chicago brick and tile folks to figure out. The joker that we are aiming at is that this pertains only to the cost of walls. If this were reduced to differences in the cost of a complete home the percentages would be so small as to furnish pretty good argument in favor of brick just as the figures stand.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

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☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

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CURRENT COMMENT.

Now the fight is on with old H. C. L.

* * *

Is it to be an eight-dollar day as well as an eight-hour day?

* * *

The pottery people are entitled to be listed as among the boosters.

* * *

The hollow tile industry is making a noise like a growing factor in the structural material world.

* * *

It has taken Uncle Sam's statistics to make us realize the full measure of what the war did to the clayworking industry.

* * *

Face brick got its face caved in during the war period, but it has a chance to come back now. Here's hoping it comes back strong and in greater force than ever before.

* * *

The Laclede-Christy Bulletin, of St. Louis, though mainly intended to boost refractories and other specialties of this firm, has also been doing its part to boost the build now game.

* * *

"Teddy's Idea" as used for a front piece in Tilecraft is that every man owes some of his time to the upbuilding of the profession to which he belongs. That's a good idea for the whole clayworking industry to hook up with.

* * *

Profit sharing is a little bit like making rabbit pie in that you must first catch your profits. That is a point the advocates of this now popular idea should dwell more upon, for unless those who work and expect to help share the profits realize as they should this main point there is likely to be some disappointments along the way.

And lo! the total refractories led all the rest.

* * *

Drain tile is doing fairly well according to the figures, but it ought to be doing a lot better.

* * *

There's a big opportunity for brick in building. Are you doing your part to make the best of it?

* * *

One of the reasons why that home building boom is not bigger is because it takes too much of what the average man makes to feed and clothe the family.

* * *

The common brick industry has taken its jolts manfully. Now let's everybody turn to and turn up some new records of production and use during the next few years.

* * *

The floor tile folks have a good chance to make a winning fight for clay tile for concrete porch floors, and the field for business expansion is big enough and broad enough to make the fight well worth while.

* * *

More brick building means more bricklayers. Are they being developed in your community? If not what are you going to do about the matter when the shortage of bricklayers halts the progress of brick?

* * *

There is some car shortage reported abroad in the land. It is not general or serious yet, and seemingly it ought not to be at all under existing conditions. But there it is, and no one knows what may happen later on.

* * *

The one good speck of news coming out of the railway and transportation situation lately is that order reducing demurrage charges to two dollars a day for the first four days after free time expires.

* * *

One of our big dailies makes a headline appeal for us to treat the farmer as a big brother. Good, the traditional appeal to the big brother is for money and other assistance, and surely if anybody has money these days it is the farmer.

* * *

We are now being told that our annual fire waste runs about $300,000,000, and the total insurance bill (including fire loss) about $700,000,000. That's mighty strong argument for the use of building material that won't burn. BUILD WITH BRICK.

NO MONOPOLY IN BUILDING BRICK.

One good and sufficient preventive of wicked monoply in the brick business is found in the abundant supply and wide distribution of the raw material. It is not possible for any group of men to corner the raw material supply, and without this monopoly could not long be successfully maintained were it ever undertaken.

EDUCATING THE BUILDERS.

One of the great needs of the day in prompting the wider use of brick for building is to educate building contractors as well as to train more bricklayers and the Common Brick Manufacturers' Association of America is outlining a splendid start in this direction in a book for the builder to furnish information on how to build with brick and how to estimate such building. There is a great multitude of carpenter contractors throughout the country and only a limited number of brick contractors and interesting and educating these carpenter contractors to brick building through the medium of a book of this kind should bring splendid results. Moreover there was never a better time psychologically speaking to introduce literature of this kind because lumber has gone so high in price that the contractor is worried and must revise all previous knowledge and figures in the matter of building with lumber. So he is ripe to show attention to and take interest in brick, the better building material, and once he is properly interested we are on the way to a bigger day in the brick industry and to better building for people at large.

THE STRIKE EVIL.

It looks like some of the Chicago union labor leaders in the building trades made scraps of paper out of their specific agreements with employers, and as a result there has developed a big scrap to halt building operations. It makes us feel like repeating once more that strikes are un-American and should not be tolerated.

A GOOD IDEA GONE WRONG.

The cost-plus plan of building is a good idea that governmental extravagance under the stress of war conditions gave a decided black eye. Conscientiously carried out by scrupulous men the cost-plus idea is pretty near an ideal thing and it is a pity to have it get a set-back from reckless extravagances in piling up costs. Since you can't keep a good idea down it will probably come into its own again.

THE GOVERNMENT AND HOUSING.

Congressman George Holden Tinkham, of Massachusetts, has introduced a bill in congress—H. R. 7014—to create a Bureau of Housing and Living Conditions in the Department of Labor, and asked for comment upon it.

Well, we are not the least bit enthusiastic about the matter. In fact, it is the other way around, for we would be more disposed to actively oppose such a step for sundry and various reasons.

Our English cousins across the water have been experimenting with a similar idea, and reports coming to us about it advise us to keep the government out of the housing matter if we expect to make real headway at any reasonable cost. That is one reason, the lack of success with such experiments abroad.

Another reason is in the fact that the Department of Labor is undertaking too many things to do any of them well.

Private enterprise will solve the housing problem in due time, and there is so much danger that government help and co-operation would run into government interference that we are opposed to any movement or activities of this kind.

AS TO COMBINES.

A recent claim published in the metropolitan papers of a brick combine in the New York territory, and investigations conducted here and there throughout the country to determine if there is profiteering in the brick business, serve to remind us that there is something can be said on the other side of this subject. Right now we are having combinations of business men to promote export trade with both the approval and co-operation of the government, while on the other side of the water we learn not only that combinations have made for commercial supremacy in the past, but strong organizations are now being gotten together to handle both domestic and export business.

In a word, combinations conceived in the right spirit for a proper purpose are good things and generally make for efficiency and effectiveness, and it is time for us to distinguish between combinations and profiteering.

It is pleasing to note that charges of profiteering against the clayworking industry have never been sustained, and that the industry as a whole shows up splendidly in this connection when compared with other industrial activities. As to combinations and co-operation, they are things we need more of and should be encouraging instead of striving to prevent them.

CLAY AS A CONCRETE AGGREGATE.

One of the interesting features of the preliminary report of the U. S. Geological Survey on the clayworking industry for 1918 is a reference to the use of burnt clay as an aggregate for concrete in ship building. It became necessary in the effort to build such ships that the concrete be made as light as possible, so various light materials, including pummice were tried. An aggregate made of burnt shale of clay proved to be a good substitute for stone and gravels in concrete, and it reduced the weight per cubic foot from about 150 pounds to 118, or in some instances to even 100 pounds.

This aggregate was made near Birmingham, Ala., at Hannibal, Mo., and at Los Angeles, Cal., and enough of it was produced to construct the 3,000-ton concrete ship Atlantis, which was launched last December at Brunswick, Ga.

While this was a specific war development it suggests some future possibilities for the use of burnt clay as a concrete aggregate. There are other uses than in ship building where it is desirable to reduce the weight of concrete, and where this is the case there should be an opening for clay. Entirely aside from the possible development in preparing clay specifically for such work, the wide use of concrete should make it easily practical to utilize all waste from clay products in this way.

BRICK PRICE INCREASES.

The average or normal price of common brick during the fiveyear period preceding our entrance into the great war ranged from $6.05 in 1912 to $6.68 in 1916. During 1917 the average price increased to $8.17, while during the next year, 1918, the average rose to $10.74. These are figures of the U. S. Geological Survey, and they show that as a result of the war and under war conditions common brick prices increased $4.10, from a pre-war level of $6.68 to a war peak of $10.78. Somewhat similar increases were scored by other divisions of the clayworking industry, some going more, but very few less.

Fire brick seems to have fared better in the matter of price increases, attaining during the war period an average price of $46.33. Vitrified brick, which in 1916 had an average price value of $13.00, went up to $15.09 in 1917, and to $17.92 in 1918. Front or face brick carried an average price back in 1897 of $12.40, from which prior to the war it had declined to $11.43 in 1916. In 1917 there was an increase to $13.72, while in 1918 the average rose to $17.39.

The record of these increases attests the conservativeness of the brick industry and the disposition to keep the prices as low as circumstances will permit. Indeed compared with the products of other industries it renews an impression that has long prevailed that the brick makers do not figure enough margin of profit. Also it is worthy of mention in this connection that various official inquiries have given the industry a clean slate in the matter of profiteering.

There is a difference between ambition and greed, and this difference is worth finding and thinking about.

BRICK MACHINERY WANTED IN GERMANY.

Guill Hiertz, ceramic engineer, writes us from Luxemburg, under date of August first, stating that there is a demand for brickmaking machinery in that section, and that he will be pleased to receive catalogues of brick presses, etc., and requested that they be mailed to him 241 Sichesstrasse, Trier, Germany.

SAND-LIME BRICK REPORT

The complete report on the sand-lime brick industry for 1918, compiled by the U. S. Geological Survey, is now ready for distribution and those desiring a copy can obtain it free upon request to the Director of the Survey, at Washington. It contains statistics of the industry since the beginning of the industry in 1913 up to and including 1918.

A CORRECTION.

A typographical error made us say in the July Clay-Worker that J. T. Underwood was the inventor of the Furnace Gas Producer. That credit is due to Mr. L. W. Underwood, the patentee of the process. Mr. J. T. Underwood is the general manager of the Furnace Gas Producer Company of Dayton, Ohio, as will be seen by referring to their ad on page 181 of this issue.

EXTENSION TO ERIE STEAM SHOVEL PLANT.

The Ball Engine Company, of Erie, Pa., builders of the Erie Steam Shovel, let a contract recently for building an addition to their Shovel Erecting Shop. The new building will be approximately 175x125 feet in area. Other additions to the Erie Shovel Plant are contemplated, as the demand for the well known Erie Shovel is such as to warrant further extensions.

CONTRACTORS PREFER RICKETSON'S COLORS.

The Ricketson Mineral Paint Works, manufacturers and dealers in Ricketson's Fadeless Mortar Colors, recently received a substantial order for mortar colors from an old-time customer, the Rochester Lumber & Coal Co., building supply dealers of Rochester, Ind., with the following letter: "Of late we have been compelled to order color from another firm, and our contractors were very much disappointed on account of the quality of material. They had to use twice the amount they had been using of your color. That speaks for itself, and in the future we will endeavor to furnish them Ricketson's colors."

NEW APPLICATION OF SIL-O-CEL.

The Celite Products Company, 11 Broadway, New York City, has just issued Bulletin B-13 describing the use and application of Sil-O-Cel Plastic Cement to irregular heated surfaces for preventing heat losses and increasing the capacity of high temperature equipment. Copies will be sent on request.

AN EXAMPLE WORTHY OF EMULATION BY CITIES.

Contracts for paving in the city of Marengo, Iowa, have recently been let and the brick to be used in the work will be furnished by the Purington Paving Brick Co., of Galesburg. The contract is remarkable in view of the fact that Marengo is a town of but 2,500 inhabitants but has contracted for one of the greatest improvements in the state, $300,000 worth of pavement being involved.

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WANTED.

Superintendent for a small brick plant in Oklahoma. References required. Good permanent place for the right man.

Address, OKLA.,
8 1 d Care The Clay-Worker.

WANTED.

200 second-hand Brick Drier Cars. 24-in. gauge, double deck. Must be in good conditions.

Quote prices to
CHEROKEE BRICK CO.,
8 3 d Macon, Ga.

FOR SALE.

Brick plant, located in county seat near center of county. Splendid clay and shale for making first-class paving brick, building brick, or tile. One million bond issue of county supplemented by Government aid, will provide about $2,000,000 for road improvement. Construction already commenced, brick specified for hard surfacing. Railroad siding at plant. Home market for many million brick for road improvement. Rare opportunity for right party to make money from the beginning. Plant can be purchased for much less than it is worth. Address,

8 1 b BOX 11, WAYNE, W. VA.

The "Built Right Run Right" Line of Clay Working machinery.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO

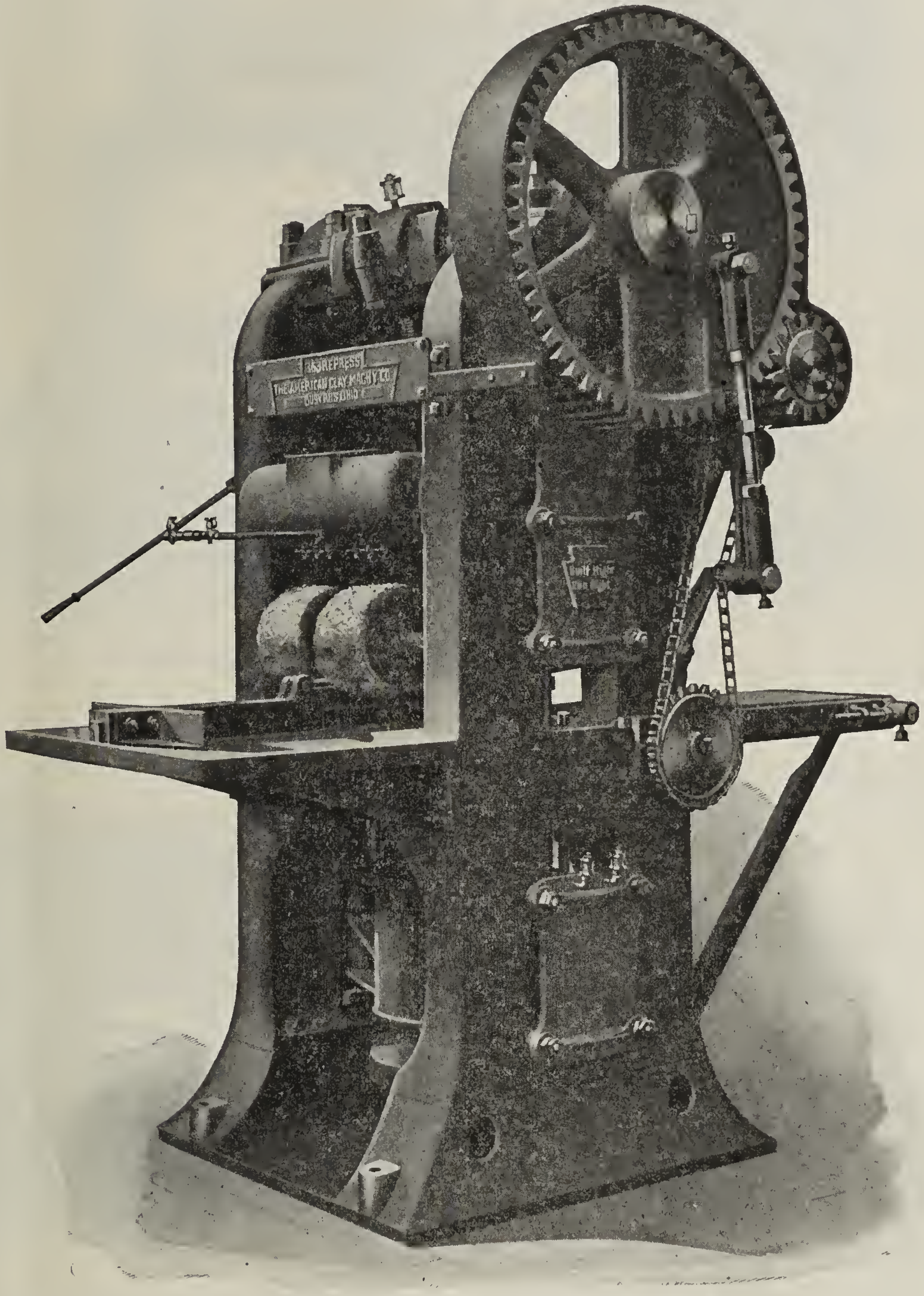
AMERICAN NO. 363 Repress.

The American line of Represses has a splendid reputation for sturdy building and steady operation. The No. 363 is no exception. It is designed for stability and performance.

The material is of excellent quality and the workmanship is thorough.

This is an extra strong machine designed for large shapes. Its principle allows of increased daily output and its simplicity makes for uninterrupted operation.

Let us send you our Bulletin on the No. 363 Repress.



American No. 363 Repress.

The American Clay Machinery Co.

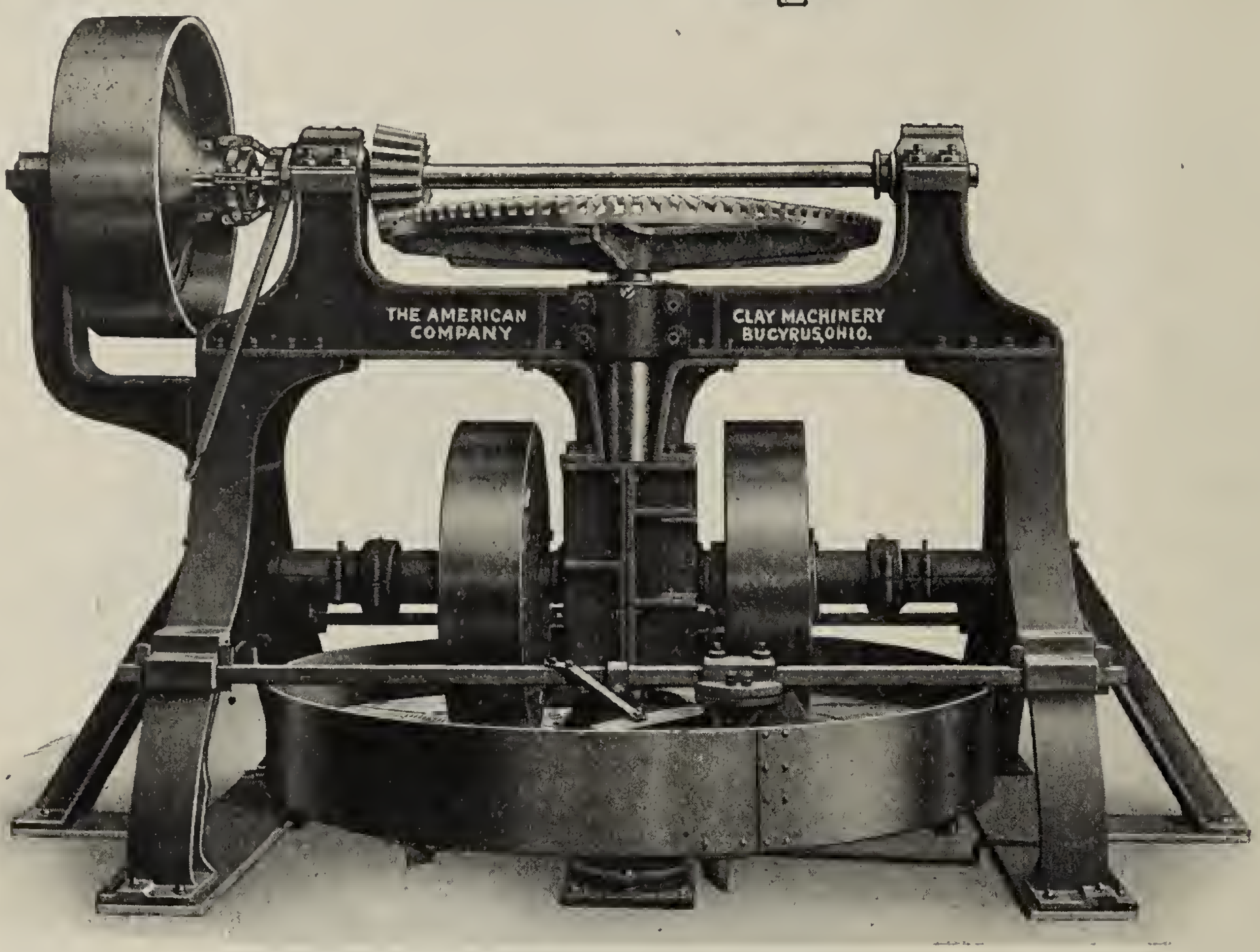
Bucyrus, Ohio, U. S. A.

American Machinery is best because it is "Built Right and Runs Right".

Fron first to last its "Built to Last". "Built Right Run Right".

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO



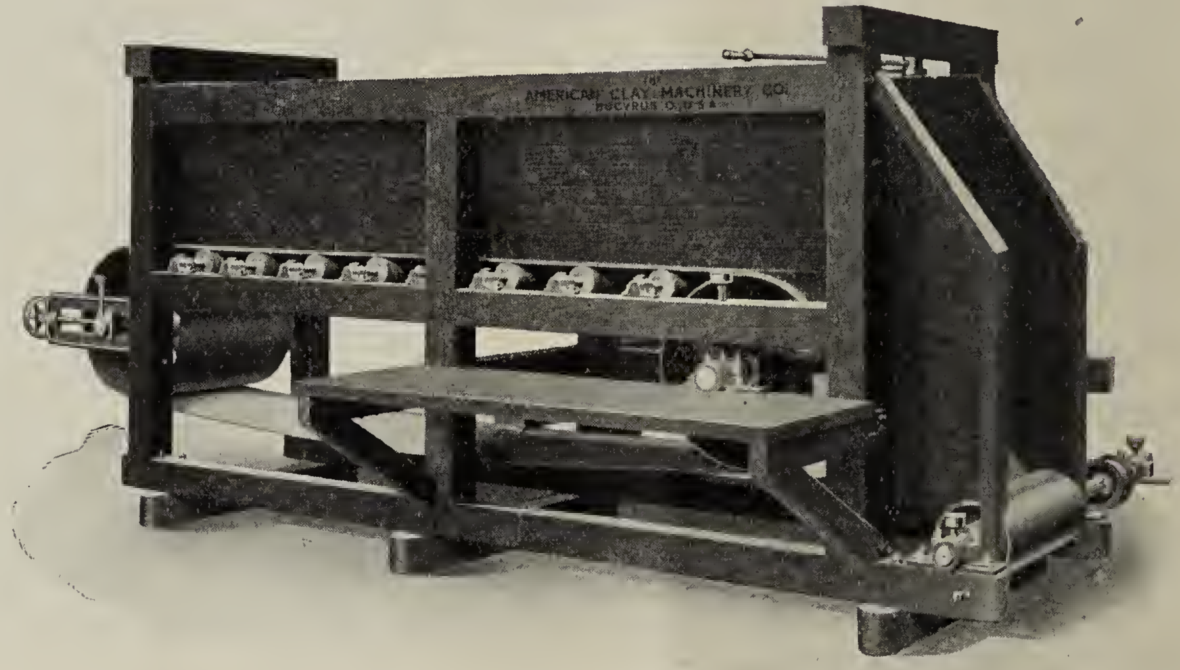
American No. 339 Grinding Pan.

AMERICAN No. 339 DRY PAN

The American No. 339 Dry Pan is a fair sample of American Pan Quality. It is Modern and a model of quality and convenience. Ask for full description of this and smaller pans.

AMERICAN PRESS FEEDER.

This No. 752 Sewer Pipe Press Feeder is our standard construction. It is strong and well built. The No. 752 Feeder will take care of a 20, 22 or 28 inch press and will provide an even feed. Get description.



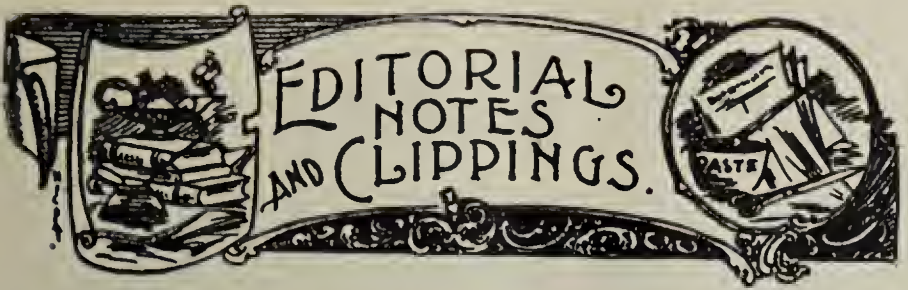
American No. 752 Sewer Pipe Press Feeder.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

None other so dependable as "Built Right Run Right".

EDITORIAL NOTES AND CLIPPINGS



Ashland, Va., wants a brick and tile plant established there.

C. C. Cocke, of Crofton, Fluvana county, Va., wants a second-hand ditching machine; must be in good condition.

The Findlay Brick Co., of Macon, Ga., has been incorporated by R. E. Findlay and Charles A. Harris, with $100,000 capital stock.

Lillard & Suttle, of Lester, Ark., are in the market for machinery for a small brick and tile plant, of from 10,000 to 20,000 daily capacity.

The Ebenezer Brick Company of Newport, S. C., has been organized by J. M. Taylor, F. R. Black, E. P. Steele and W. H. Matthews, all of Rock Hill, S. C.

The Robinson Clay Products Co. have under consideration the erection of a two-story building at Akron, Ohio, part of which will be used for office purposes.

The New England Brick Company of Boston, Mass., reports a good season. Brick are selling at $18.00 on the job, and prospects are good for a slight advance.

The Carolina Shale Brick Co. has been incorporated at Charlotte, N. C., with $250,000 capital stock. W. R. Taliferro, H. A. Morson and John S. Gilchrist are interested.

Robert Barton, an employe of the Haws Refractories Co., at Mifflin, Pa., was killed instantly when the cable of a clay conveyor broke and the bucket fell on him from a distance of about twenty feet.

The Duffney Brick Co., of Mechanicsville, N. Y., has taken over the shale brick plant of the Mechanicsville Building Brick Company, which has been shut down for some time, and put same in operation.

The Jewett Fire Brick Co., of Canon City, Colo., resumed operations the first of July, after a shut-down of six months. Just now they are busy on an immense order for the Standard Oil Company's smelter at Florence, Colo.

Pass Christian, Miss., wants a brick and tile plant. Interested parties will do well to correspond with the mayor, Frank Sutter. Suitable clay is available, with good shipping facilities for the finished product to nearby coast cities.

C. C. Carhart, of the Sheffield Brick & Tile Co., of Sheffield, Iowa, was recently elected president of the Permanent Building Society, with headquarters at Des Moines. Mr. Carhart has his new plant at Sheffield almost ready for operation.

William P. West, for a number of years associated with the sales department of the Ironclay Brick Co., of Columbus, Ohio, has resigned to become general sales manager of the brick department of the Columbus Contractors' Supply Company of that city.

The Alliance Brick Company of Alliance, Ohio, has started work on Plant No. 2, which will be operated in connection with the present plant. The new factory will be equipped with up-to-date machinery and appliances, and the brick will be burned in a continuous kiln.

The National Brick Company, LaPrairie, Ont., Can., suffered quite a loss by fire recently. The main office of the company is located at 511 St. Catherine street, W., Montreal. A. T. Alexander, the secretary of the company, reports that no time will be lost in rebuilding.

The brick plant of the Ontario National Company, Cooksville, Ont., Can., which was recently purchased by the Shale Brick Company, of which R. L. Fraser is general manager, and A. McArthur, superintendent, is now in full operation, after a long period of inactivity. Mr. Fraser reports enough orders on hand to secure steady operation for some time to come. The company maintains an office in the Crown building at Toronto.

The Plastic Brick Co. is erecting a brick plant at Pottstown, Pa.

C. E. Hilyer will erect a plant at Jacksonville, Fla., for the manufacture of brick.

The capital stock of the Claycraft Mining & Brick Co., of Columbus, Ohio, has been increased from $200,000 to $300,000.

The Beaver Clay Products Co., of Beaver Falls, Pa., will build an immense addition to their plant. Work will be started on same at once.

The Richards Shale Brick Company of Mansfield, Ohio, has been incorporated with $100,000 capital stock. Charles Hoffman is at the head of the enterprise.

A company is being organized at Henryetta, Okla., for the purpose of establishing a brick and tile plant. A very fine deposit of shale has been discovered at that point.

The plant of the Toledo Vitrified Brick Company, located at Rossford, Ohio, was damaged to the extent of $6,000 by a fire which is supposed to have started from sparks from a passing switch engine.

F. G. Atkinson, for many years superintendent of the Suburban Brick Company of Bellaire, Ohio, became superintendent of the Windber Clay Manufacturing Co., Windber, Pa., the first of August.

The Board of Directors of the American Face Brick Manufacturers' Association combined business and pleasure and held a called meeting at Niagara Falls, N. Y., August 1 and 2, which was well attended.

George J. Walters will make a number of improvements in his brick and tile plant at Chatsworth, Ill., including the installation of two new boilers. Mr. Walters' chief output is drain tile, and he reports a good season.

The Clarion Coal & Clay Co., of Wilington, Del., has been incorporated for the purpose of acquiring mining rights and developing same. Those interested are E. V. Darlington, M. Butler and L. M. Jennings, all of Wilmington.

James Howington, manager of the Coral Ridge Clay Products Co., Louisville, Ky., is running his plant full time on building brick and hollow tile. While orders are not quite as numerous as earlier in the season, Mr. Howington has no complaint to make, for he is willing to stock up for future business.

The plant of the Dowlin Brick Company of Billings, N. D., was badly damaged by an explosion in the main machinery room of the plant. W. E. Dowlin, president, is at a loss to account for the explosion, and states that the work of rebuilding the wrecked portion of the plant will be pushed without any delay.

The new main building of the Queen City Brick & Tile Co., of Cumberland, W. Va., recently completed, and built of brick and frame, near Evitt's creek, was burned to the ground. The building was erected at a cost of about $40,000, contained all modern machinery, including gas producers, and was quite a large plant in itself.

The Ironclay Brick Co., of Columbus, Ohio, has taken over the plant and business of the Central Mortar & Supply Company, of Columbus, which includes the manufacture of mortar, and the handling of a full line of brick, flue linings, sewer pipe, etc., and the retailing of coal during the winter months. The office will be consolidated with the present one of the Ironclay Company in the Ruggery building.

F. D. Bates and B. J. Chamblin, of Dallas, Texas, both of whom have recently obtained release from U. S. army service, have organized the Southern Building Products Company at Little Rock, Ark., and will erect a plant for the manufacture of interlocking tile and in addition to their own product, will handle brick and other clay products.

Business has come back with such a rush to the West Virginia Paving & Pressed Brick Co., of Huntington, W. Va., that they are going to spend $35,000 in improving the plant with a view of increasing the output to 60,000 brick per day. Among other things, they will install two large dry pans, and a new drying unit. Later in the fall, two new kilns will be erected with a view of still further increasing the plant capacity. Thomas E. Evans, secretary-treasurer of the company, says they are now working overtime in order to keep up with the demand.

R. D. Rose, of Hinton, W. Va., is in the market for a good ditching machine.

A. F. Basinger, H. M. Crawford and James W. Halfhill have incorporated the Lima Brick Co., of Lima, Ohio, with $12,000 capital stock.

The Fulcher Brick Co., of Nashville, Tenn., advise that they would like to take the agency for a good line of rough texture brick for that section.

James M. Cosgrove, of Malden, Mass., writes that he would like to get in communication with a good reliable brick manufacturing firm desiring a first class selling agency in the New England States.

Construction work on a new brick plant at Grand Junction, Colo., was started August 15. F. J. Currier, Sr., is general manager of the company and has charge of the construction of the plant.

'Cisco, Texas, is a good location for a brick and tile plant, and the Secretary of the Chamber of Commerce will gladly give particulars to any one interested in establishing a first class clayworking plant at that point.

R. R. Lambert, the senior member of the brick manufacturing firm of R. R. Lambert Co., of Pittsburgh, Pa., died recently at his home in that city. Mr. Lambert had long played a prominent part in the political circles of Allegheny.

With the granting of the request of the employes for an eight-hour day, the strike at the plants of the Forest City, Great Western Sewer Pipe Company, and the Kane Clay Co., at Toronto, Ohio, which had been in progress almost two weeks, was ended.

The Brunt Tile & Porcelain Co., of Columbus, Ohio, will make a number of improvements in its plant at Chaseland, including the installation of a modern dryer and other equipment, and the erection of an additional kiln. W. F. Steele is general manager of the plant.

The Warren Brick & Tile Company of Detroit, Mich., has been incorporated to manufacture and deal in brick, tile and other building supplies and materials. The company is incorporated with $50,000 capital stock, and the incorporators are Julius Ritten, Ernest Bergman, S. Camensky and others.

F. C. Schuestett, who for several years was prominently identified with the Illinois Highway Department, has joined the sales force of the Municipal Paving Brick Company of Portsmouth, Ohio. Mr. Schuestett has had much experience in road building work, which will prove a valuable asset in his new work.

The Glasgow Clay Products Company of Glasgow, Va., of which C. H. Locher, Jr., is manager, is erecting three additional kilns to increase the manufacture of shale and face brick. Drain tile will also be manufactured to some extent in the new addition. This addition will largely increase the daily output of the works.

H. T. Epperson, of Albany, Cal., has discovered a combination of clays from which bisque doll heads can be made. Mr. Epperson was formerly a doll-head decorator, but when the war shut out importation of bisque doll-heads from Germany, he found himself out of a job, and so set to work to work out something from which the doll heads could be made. A company will probably be formed to develop Mr. Epperson's invention.

J. W. Herring, of the Herring Brick Agency, of Dallas, Texas, would like to get in touch with a reliable and experienced brick man, who would be interested in starting a first class brickmaking plant, between Dallas and Fort Worth. There is a good deposit of shale in that vicinity, and good shipping facilities for both Dallas and Fort Worth trade. Mr. Herring would also like to take on a good line of enameled brick, for which he has a demand.

A project of much interest to brick manufacturers of St. Louis, Mo., is the development of a plan for the erection of 100 brick bungalows at Kenwood Springs, one of the attractive suburbs of St. Louis. A. A. Fisher has charge of the enterprise, which it is generally understood is being financed by Herman Luyties, who recently promoted a similar building proposition. It is hoped this is but a forerunner of a steady building boom in brick residences. The housing proposition in all large cities has become such a problem that men of means in almost any live town would do well to emulate the St. Louis example.

The Independent Brick & Tile Company of Cleveland, Ohio, has been organized with $300,000 capital stock, by Howard Geist and others.

The capital stock of the Mayonne Brick Co., of Glasgo, N. Y., has been increased from $4,000 to $25,000, and a number of improvements will be made in the plant.

L. F. Dalton, Poplar Bluff, Mo., R. F. D. No. 3, Box 5-A, desires information relative to burning fire brick with oil, and will be pleased to receive catalogues of oil burners and other equipment necessary for that purpose.

The Postville Clay Products Co., of Postville, Iowa, is running to capacity these days on brick, hollow block and drain tile. They are loading direct from kiln to cars and are shipping as fast as they can turn them out.

W. M. Palmer, secretary of the Whitney Brick and Manufacturing Co., Ocala, Fla., is considering the installation of fuel oil in their brick kilns, and will appreciate any information relative to equipment necessary that any reader of The Clay-Worker can supply.

Delmer H. Morse, of Gardner, Mass., has purchased the Otter River Brick Plant at Otter River, Mass., formerly operated by Edward F. Fish, who died recently. The plant is now turning out 30,000 brick per day and this will be increased as the business justifies.

Peter B. Colgan, paving brick contractor of Dunkirk, N. Y., has been awarded the contract for Eagle Street from Main to the D .A. V. railroad tracks with vitrified shale brick. The bid amounted to a little more than $52,000. Mr. Colgan is given three months to complete the job, but with favorable weather he expects to cut that time considerably.

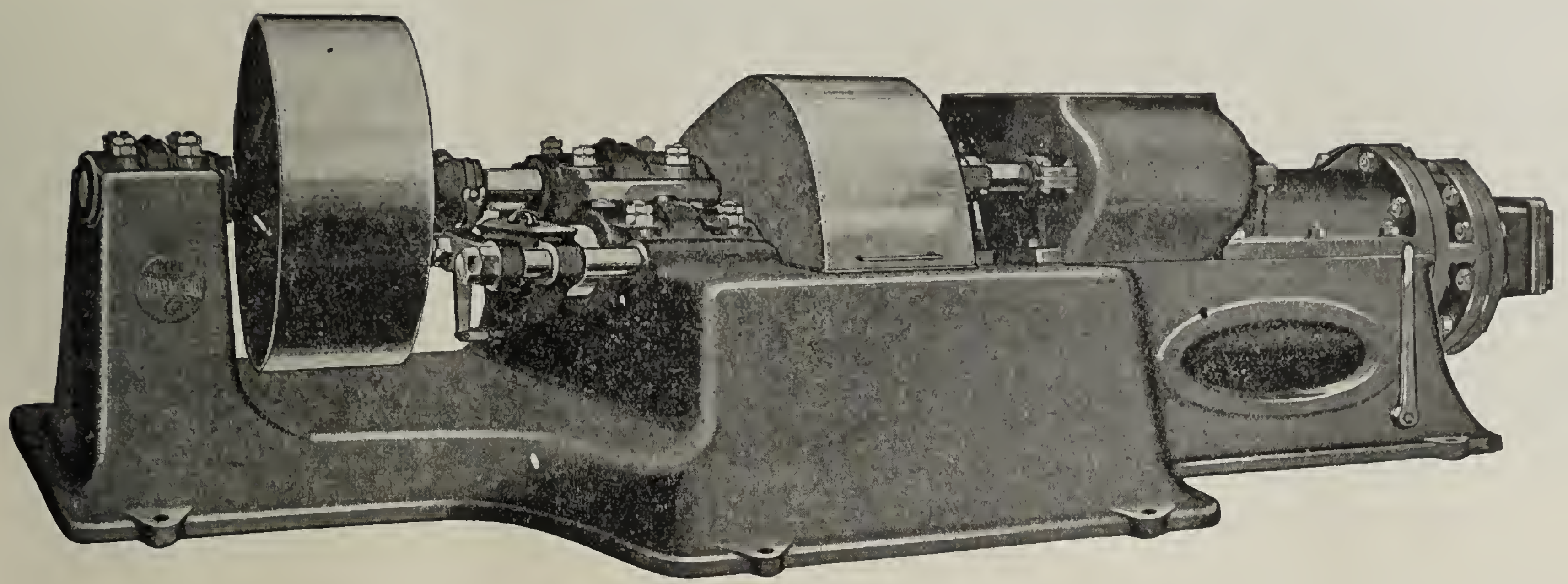
A conference between the labor committee of the U. S. Potters' Association and the executive committee of the National Brotherhood of Co-operatice Potters on the proposed two-year wage agreement will probably open Tuesday, September 2, in Atlantic City, N. J. Demand for a twenty-five per cent increase in wages and improved working conditions are the principal features of the proposal. Approximately 8,000 pottery workers are affected by the agreement.

The Willow Brick & Tile Co., of Blanchard, La., is soon to be incorporated with $50,000 capital stock, and F. M. Brown, at the head of the movement, writes that the company will be in the market for a complete outfit for a plant of 30,000 daily capacity. The company's property is located on a railroad and two natural gas lines. Mr. Brown wants to make arrangements with a reliable concern to erect the plant and turn it over to the company ready for operations.

GLADDING, MCBEAN & CO.'S NEW PLANT NEARING COMPLETION.

It is expected that the first of September will see the Lincoln plant of Gladding, McBean & Co. completed and in full operation. A large force of mechanics are now at work on the pottery building and as soon as they are finished, the main building will be hurried to completion. Two ffoors of the large building are finished already and the pillars are being placed for the third floor. It is expected that the output of the factory will be greatly increased as soon as normal conditions exists at Lincoln. The company is said to be concluding negotiations for the purchase of the Cannon & Phillips Tile and Brick Works at Ben Ali, near Sacramento, Cal. It is understood that the present personnel of the Cannon & Phillips organization will continue with the sales end of the business and Chas. Gladding of Lincoln will assume charge of the factory. This is the first time the Gladding, McBean interests have been engaged in the manufacture of hollow tile and the anticipated demand for this product should produce some good results for the company's venture.

Government ownership didn't make our railroads, and neither has government operation made satisfied shippers.



Type 435 For Brick or Tile

The Type of Auger Machine That Will Eventually Be Found On All Progressive Clay Plants

WHY?

ONLY **TWO CASTINGS**
TWO SHAFTS
TWO GEARS

International Clay Machinery Co.

DAYTON, OHO

LAKEWOOD ENTERPRISE.

THE LAKEWOOD ENGINEERING CO.'S publicity manager recently perpetrated a very novel method of catching the public eye. An attractive poster printed on pink paper and illustrated with the various cars and other supplies for industrial plants which they manufacture was distributed from a flying machine. This is the first authenticated bit of aerial advertising that has come to our attention. Lieut. George M. Comey, late of the air service of the A. E. F., distributed the posters from a Curtis biplane, the initial trip being made over Ohio. The home of the Lakewood Engineering Company is at Cleveland, but they have warehouses in many of the larger cities which enable them to give customers quick service.

A NEW CONTINUOUS KILN IN ENGLAND.

SO MANY PATENTS have been granted for continuous kilns of the chamber type with transverse arches that it is difficult to find anything which is really new and the novelty, when found, is seldom an improvement. This is, to a large extent the case with a patent recently granted. This specification described a chamber continuous kiln with grates like a Belgian kiln, and with the usual trace holes, connection to main flue, etc. The novel feature consists in reversing the arrangement in the well-known "English" kiln and drawing the steam through a series of small flues in the partition walls and thence down to the main flue beneath. On the "English" kiln these flues are used to supply hot air to dry and warm the bricks. In the present kiln, the hot airs enter through a port near the floor of the chamber and is drawn from the cooling chambers through a similar port near the arch of the chamber, but in the back wall.

Anyone who is well acquainted with the conditions which occur in a kiln chamber when bricks are being steamed will have pretty definite ideas as to the best position of the outlets for the steam No. one has thought seriously of placing these openings between the trace holes and about two feet above the floor of the chamber. Nor is there any reason why they should do so, as such a position combines all the faults of both upward and downward without any real compensation other than the paltry one of enabling a new patent to be obtained. On the other hand if the steam is removed through these flues from near the top of the chamber another patentee's rights would be infringed.

The patentees remark that in this kiln there is no need to charge with coal when stacking the bricks; a statement which is by no means clear, unless it has reference to the use of fuel in some form of clamp. But then would anyone ever dream of using a clamp-setting in a costly kiln of the continuous chamber type? Possibly, however, the clause was inserted to please a patent examiner who is not expected to have any practical knowledge of kilns and their construction.

THE OLD AND THE NEW WAY.

The accompanying verse was written by W. G. Stephan, of the Hale-Stephan Company, Cleveland, Ohio, and tells in rhyme of the improvement of the Vulcan Soot Cleaner over the old method of cleaning boilers.

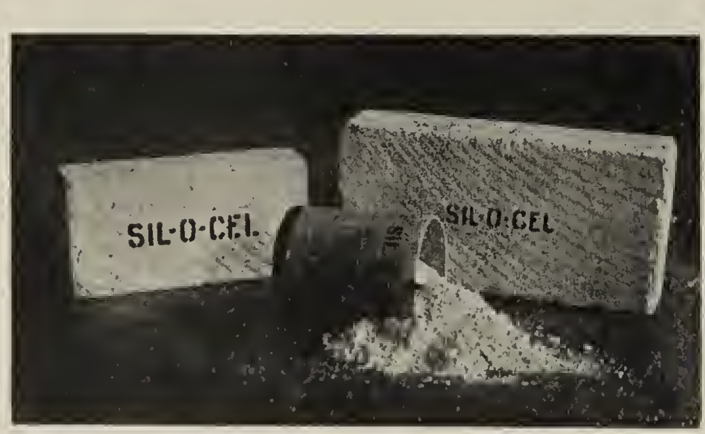
THEN

The fireman stood high off the boiler room floor
Wet to the skin, his hands were sore
From burns on the hot steam lance that he bore,
Trying to clean flues thru the boiler door.
His face was black from the soot that blew
Back thru the door—not out thru the flue,
As well behaved coal soot ought to do,
What he said of his job was a plenty, too!

NOW

The fireman stands on the boiler room floor,
Opens a valve or two; nothing more.
Pulls a few chains; the steam jets roar,
My, how quickly the job is o'er.
Cleans the boiler—saves the heat,
John thinks soot cleaners can't be beat,
Likes his work—smiles all day,
He cleans his boilers the VULCAN way.

Harken to the song of the machinery man, for it may furnish an inspiration that will lead the way to progress.



PERFECT POTTERY
is possible only where the internal temperature of the oven is uniform throughout all parts of the oven. This uniform annealing of the castings increases the percentage of perfect product produced.
By insulating your oven with

SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

Insulating Brick, the length of time required to reach the desired heat is decreased, and the temperature while heating to this point is uniform.
Most of the economically operated kilns are using SIL-O-CEL. The saving they realize in the fuel alone more than offsets the small cost of insulating.
SIL-O-CEL is supplied in brick, block, powder and cement form, making it applicable to any surface.
Are yours economically operated kilns. If not, then you must surely be interested in our product. Let us send you some literature and samples.

CELITE PRODUCTS COMPANY
NEW YORK 11 Broadway
PITTSBURGH Oliver Building
CHICAGO Monadnock Building
LOS ANGELES Van Nuys Building
SAN FRANCISCO Monadnock Building

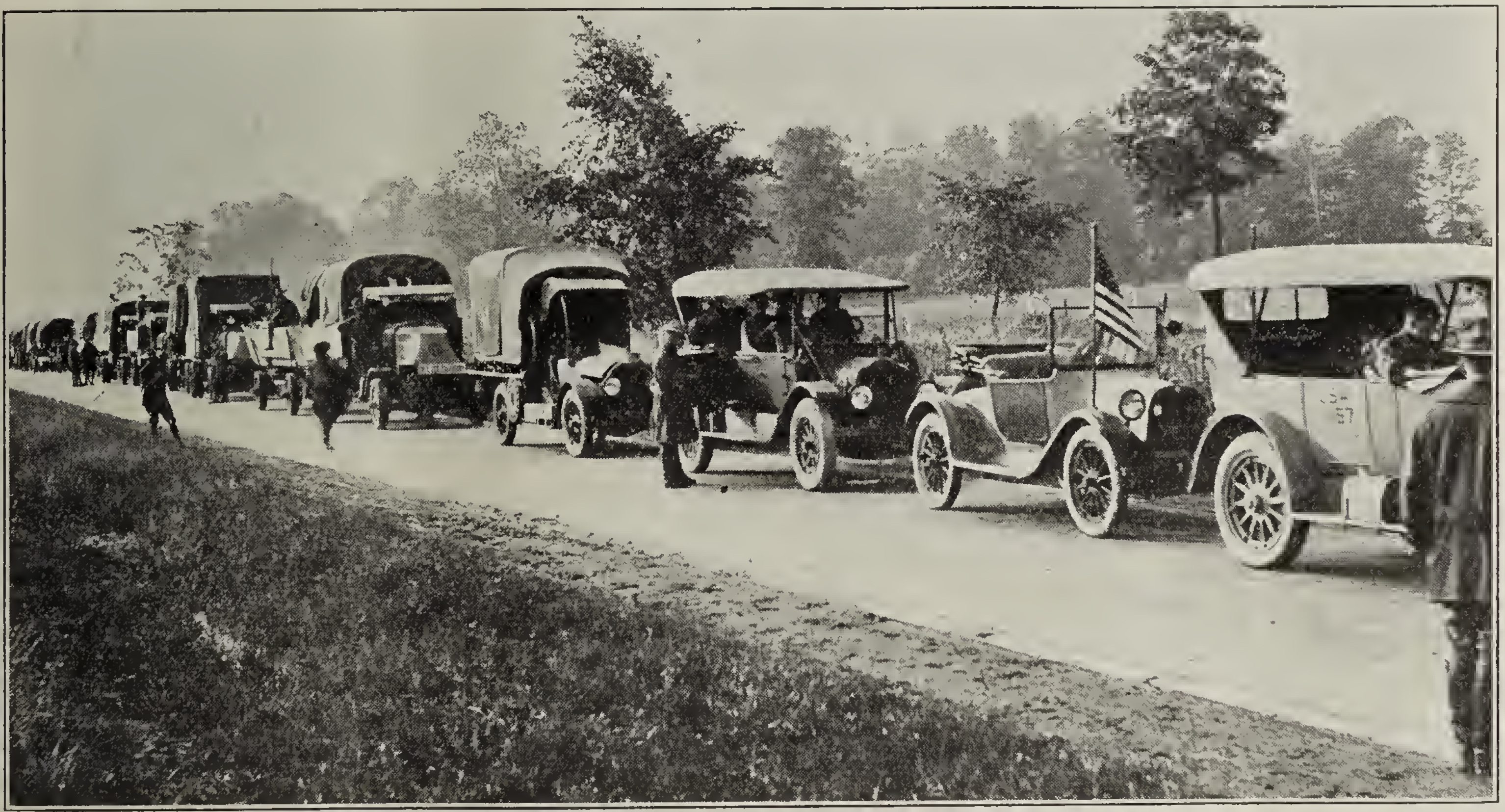
THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. 72. INDIANAPOLIS, SEPTEMBER 1919. No. 3.

BRICK PAVED HIGHWAYS BEST

The U. S. Transportation Officials Brought Face to Face With the Fact That Brick Roads are in every way the Most Satisfactory Thoroughfare and are an Important Factor in Solving the Nation's Transportation Problem.



The U. S. Government Truck Train on the Brick Paved Section of the Lincoln Highway at Bucyrus, Ohio.

IF AS SO often said "seeing is believing," those who participated in the truck trip across the continent must admit that brick paved roads are unequaled for heavy service trucking and that is now an all important matter for it is generally conceded that permanent roads are an essential in meeting the demands of modern transportation.

To demonstrate the feasibility of trans-continental service, the United States Transportation Department recently started a government truck train on a trip from Washington to San Francisco via the famous Lincoln Highway. The train consisted of sixty trucks, cars, motorcycles, etc., and en route passed over many fine stretches of brick paved highways through northern Ohio. A stop was made at Bucyrus, the home of the American Clay Machinery Company, and the ever alert publicist of that company, F. L. Hopley, secured some excellent photographs of the entourage and has supplied same to the trade press. The object of the truck trip is to compile information as to truck traffic, road conditions, cost of operation per mile per ton and to demonstrate the feasibility of long distance freight hauling by trucks. Incidentally the enlistment of recruits for the motor transportation branch of the government service was not lost sight of. While passing through the Buckeye state, particularly the Bucyrus district, the truckers were impressed with the splendid brick roads and the ease with which they were enabled to negotiate that character of highway.

The caravan struck all kinds of roads and when East Liverpool, Ohio, was reached, word was sent on to Worcester, the next night's stop, that because of road conditions the train would not reach Worcester until 8 p. m. In making their calculations, the officials of the train had overlooked an important factor, however, that factor being a good brick road most all of the way between East Liverpool and Worcester. So, contrary to expectation, the truck train pulled into Worcester at 3 o'clock in the afternoon, having gained five hours by virtue of the good brick roads. Five hours was not all the saving, at that, as the gasoline consumption was less on the good brick roads than it would have been on poor roads and be it remembered, five hours of gasoline for sixty trucks and cars amounts to quite an item, to say nothing of the wear and tear on the trucks which is at a maximum on bad roads and at a minimum on a good brick road.

Some months ago the government conducted tests which showed that a gallon of gasoline goes about twice as far in truck service on a brick road as it does on dirt roads and proportionately farther on other types of roads not as good as brick, and in government service, the saving of time is quite important. Considering all these points, it is quite apparent that a good road is essential to satisfactory service in truck traffic and the experience of the truck train in northern Ohio demonstrates that from a standpoint of economy and efficiency, the brick paved highway is without an equal.

When the Lincoln Highway was first laid out, the officials of the American Clay Machinery Company, with characteristic enterprise, induced the county officials and road builders of that section to put down some good brick roads and with improvements under way every mile of the highway in that county will be brick paved in the near future.

Having experienced the advantages of brick paved roads, the truck train officials very gladly decorated some of the trucks with streamers reading as follows—"Bucyrus, Ohio, believes in the Lincoln Highway. We are paving it with brick across our County and State." So, this message and boost for brick roads will be carried across the continent.

It was a fine bit of enterprise and other communities will profit by following suit and thus bringing to the attention of taxpayers the advantages of building the one permanent roadway, BRICK, rather than the temporary road, even though the latter may be cheaper to begin with. As in many things, it isn't the first cost of a good country road or city thoroughfare that counts. In the long run it is the upkeep. Build a good brick road to start with and there isn't any upkeep. "The first cost is the last cost."

Over the State Line.

The truck train, as it proceeded west through Indiana, again passed over some fine stretches of brick road which enabled them to make up valuable time lost when driving over the intervening stretches of unimproved roads. Elkhart county, Indiana, boasts of many miles of fine brick roads that have been in use now for several years and are as good as new though subject to heavy traffic. The first cost of these roads, like those in Ohio, has been the only cost as they require no repairs and bid fair to continue in good condition for a quarter of a century or more.

The brick roads on the Lincoln Highway in and about Goshen, the county seat of Elkhart county, are exceptionally good. They are smooth and clean and afford easy and speedy motoring for all sorts of traffic the year round. This is a rich farming country and the Hoosier farmer located on or near a brick road has a decided advantage over those who have to haul their produce over ordinary roads.

Bucyrus Sends Good Roads Greetings Across the Continent.

In a neat little leaflet entitled "Indiana Highway Commissioner Favors Brick Roads," one of Indiana's highway commissioners and an engineer of renown, Mr. John Oliphant, is quoted as stating that he would vote 25 per cent. more for a brick road than for a road built of any other material. He knows from experience that a good brick road outlasts those constructed of concrete or any other materials.

Why Brick Roads are Best.

The same leaflet quotes from another noted engineer, Mr. Henry Exall Elrod, member of the American Society for Civil Engineers, who recommends brick roads over those of concrete. He says:

Concrete wears! Just as the "consant drip of water will wear away the hardest stone," so will the constant rolling of vehicular traffic wear the surface of the best concrete. And the vehicular traffic will be aided in its task of destruction by the elements, against the action of which few materials of construction endure. Heat expands concrete—cold contracts it; thus the ever-recurring cycle of the seasons sets up an internal friction in the concrete which will eventually crack road slabs. Once a crack occurs the entire slab quickly shatters under heavy traffic. When concrete begins to deteriorate there is no practical way known to engineering science to stay the deterioration or to mend the wear, as new concrete will not form a satisfactory bond with old concrete. A prominent highway engineer recently stated to the writer that all concrete highways eventually become bituminous surfaced roads, for when the surface of the concrete roads began to wear there was no way to protect them except to resurface them with asphalt. This is unsatisfactory, as asphalt will not form a good bond with the concrete and soon rolls up in ruts and waves, balls up and is picked up by automobile tires, etc.

As yet there are no experience tables covering the life of concrete roads under present day traffic. A portion of the West Dallas concrete pike, which has been laid less than three years, is now in a state of deterioration which would indicate that its reasonable life is much less than twenty years, which period of time is often set as the expectancy of life of concrete roads. The famous Wayne County (Michigan) concrete highway system was built in 1910. After six years of use the Grand river road section had worn in holes and cracked to such an extent that it became necessary to resurface it with three inches of trap rock concrete. After two years of use, in July, 1918, this resurfacing showed many longitudinal cracks. (Engineering News-Record, July 18, 1918.)

Concrete roads are laid in large units, usually twenty feet wide by twenty-five or thirty feet long. When a unit wears out it is necessary to remove the entire unit and lay another, although much of the unit may still be in comparatively good condition.

Desirable for Base.

Concrete is desirable for a base for highways, but, to the writer's mind, it should not form the base and wearing surface also. How much better it is to lay a properly designed base of concrete, just as is done for city pavements, then lay brick on the concrete base, with asphalt filled joints, to form a wearing surface. This method of paving has been tried out thoroughly and its efficiency is well known. Many brick pavements have been in constant use for more than twenty years under the most severe traffic conditions and are still good, and will be as long as time last if the brick are removed and replaced as they wear.

The concrete base under a brick surface may crack from defects in the sub-grade and other causes; however, the protection provided by the brick surface against the impact of traffic and from the effects of the elements will tend to reduce the probability of its cracking. But should it crack, no serious damage is done, as the sand which forms a cushion between the brick and concrete base will filter into the cracks and close it and the crack, by virtue of the elastic asphalt filler between the brick, will not ordinarily show up on the surface of the pavement. But should it do so it may be easily and successfully repaired by pouring the crack full of asphalt. With the use of asphalt as a filler between the joints of brick pavement no further thought has to be given the matter of expansion and contraction, as the asphalt forms an elastic cushion around each brick, protecting it from shocks or blows, and allows slight adjustments in its position to care for shrinkage or settlement of the sand cushion and provides a flexible water-proof joint, which is easily maintained.

A Fine Stretch of Brick Road Over which Heavy Truck Traffic Speeds Safely the Year Round.

Maintenance Necessary.

Maintenance is necessary with any character of road. What would you think of a railroad that built its steel tracks upon a well-ballasted roadbed and then turned it over to daily use without maintenance? You would say the management of the railroad was crazy, and rightly so. Yet a county spends more for a highway than a railroad spends for its tracks and immediately turns it over to the destructive action of traffic and weather with never a thought of maintenance—and wonder why the road goes to pieces quickly.

A concrete road must be maintained just as any other road is, otherwise, when depreciation has accrued, the road goes to pieces all at once and must be replaced at practically the entire cost, new.

Brick roads are easy to maintain, the units being small, when one wears, it is readily removed, if laid with asphalt filler, and replaced with small cost and no interruption to traffic just as long as the worn brick are replaced by new ones, just so long will the pavement last, whether it be ten years or a century. A good brick highway costs no more than a properly constructed concrete highway and should be designed as per the following sketch.

The Engineering News-Record (April 10, 1919) reports that out of seven hundred (700) miles of state-aid roads in Illinois about four hundred (400) miles of which are brick and concrete, the costs of maintenance, per mile, per year, were as follows:

Brick	$ 56.56
Concrete	81.45
Earth	102.20
Gravel	162.20
Macadam	564.20
(Including surface treatment.)	

HELPFUL HINTS FOR TRUCK OPERATORS

By Alfred F. Masury, Chief Engineer, International Motor Company.

FIRST OF ALL, it is necessary to understand the cooling system. Do not expect the truck to labor in low gear up long grades or through deep sand, perhaps with a trailer, and still keep cool if carbon deposit is permitted to accumulate in the cylinders, if insufficient water is put in the radiator, if the oil level is low or the oil is of the wrong kind.

At the beginning of the season it is ordinarily necessary to change the carburetor adjustment, that in summer being a trifle leaner than that for winter. Overheating is sure to result if the carburetor is improperly adjusted.

Timing has an important bearing on cooling. In hot climates where temperatures are excessive for a considerable part of the year, the engine may be made to run cooler, but at a slight sacrifice of power, by setting the camshaft one tooth ahead (earlier) on the timing gear, so that the exhaust valves open earlier. A weak spark has the same effect as late spark timing, and overheating will result.

Difficult grades can be made with greater speed and less fuel in intermediate than if the engine is permitted to labor in high to the point of stalling. Contrary to popular supposition the engine will cool better if it is not obliged to labor excessively.

Keep the exhaust clear of obstructions and do not allow mud to cake on the outside of the muffler or to clog the outlet.

The radiator must be filled as full as possible. Do not allow the overflow to become clogged, or flattened by a blow or kink or slip in the radiator.

Use only the best quality of rubber hose for water connections. The inside of cheap tubing is apt to dissolve and the rubber particles clog up the system. Go over hose connections in the spring because some anti-freeze solutions have a deleterious effect upon the rubber. Also they have a scum inside the radiator which will not dissipate the heat. It must be cleaned out.

In filling the radiator only clean water should be used. Strain the water through a cloth where none but dirty water is available. Above all do not use buckets in which oil has been kept.

Keep the fan clean and well greased, so that it will turn freely.

Not all of the cooling of the engine is effected by water; but lubricating oil plays an important part as it cools the bearings. Keep the crankcase clean; it cools the oil. It has been found that gasoline washes the lubricant from the cylinder walls and a mixture of gasoline and oil runs into the crankcase where in time it destroys the lubricating qualities of the oil. For this reason the oil in the crankcase should be drained and replaced with new oil every 1,500 miles. If this is not done the oil will be unable to properly lubricate the rubbing surfaces and heating will result.

The average working temperature of oil in summer is higher than in winter, and so oil of the same body will be thinner. Sometimes it is advisable to use a grade heavier oil in summer. In excessively hot spells an especially heavy grade of oil may be required to maintain the oil at the proper consistency in operation. When a heavier oil is used care should be taken not to work the engine too hard before it is warmed up. Buy oil only from reliable refiners.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN CLAY NEWS.

THE BRICK AND CLAY INDUSTRIES continue to enjoy a prolific business. Building operations throughout the state and Milwaukee continue on an unprecedented scale, and all reports bid fair to a record building year. The shortage of housing room has caused the organization of numerous home building associations throughout the state which have taken to building on an immense scale, many using nothing but brick in their operations. This great spell of building augmented by great commercial and public building operations has caused a demand for clay products that is keeping every plant working at maximum capacity. With the early adjustment of the allied building trades strike which only held forth for a few days, local contractors are again working at top notch speed.

According to recent statistics compiled by the Common Brick Manufacturers' Association, Milwaukee is one of the cheapest brick cities in the United States. Only three cities sell brick any cheaper than the Cream City. They are Princeton, Minn., for $10; Molino, Fla., with $10.50, and Salt Lake City, Utah, with $11.50. With a quotation of $12 delivered at the job, Milwaukee is tied with Chicago and Canton, Ill. While most cities show a sharp increase in price over a year ago, the price of bricks in Milwaukee has fallen exactly $1, and that recently.

At a special meeting of the stockholders of the Kenosha Homes Company the capital stock was increased to $350,000. The company's building operations has taken on renewed vigor, and contractors assured M. L. Dowse, president of the home building company, that from 15 to 20 new homes will be well under way within a week. Brick manufacturers have guaranteed the completion of sixteen foundations within a week.

Carl Lotz of Wausau, Wis., who was awarded the contract for the paving of portions of Scott, Fourth and Jefferson streets with vitrified brick, has reported great difficulty in obtaining material due to the numerous rush and immediate orders brick manufacturers have on hand.

The Whitewater, Wis., Brick and Tile Company is reported as operating at maximum capacity. They report an exceptionally heavy demand for drain and building tile, which are being turned out in great quantity. The company has increased its business so rapidly that the additional increase in capital of $25,000 has readily been absorbed. Harry Wilson, superintendent of the plant, will resign October 1.

—BADGER.

Written for The Clay-Worker.

BRICK MANUFACTURING IN BELGIUM.

How It Is Carried on in That Brave Little Country, Its Resources, Development and Methods of Manufacture.

BRICK MANUFACTURING is an ancient industry in Belgium. Besides certain mountainous districts like the Ardennes, and sand countries like the Campines, the whole of Belgium soil is sown with brick manufactories.

The Belgium brick manufacturers have been able to produce an excellent brick at a very cheap rate. The workman is known all over the world for his experience and skill in that kind of industry, and, therefore, is asked by the countries neighboring to Belgium to execute work for far higher wages than he can obtain in his native country.

This industry has received a great development at Boom and the neighborhood, at Brussels and in towns on the sea coast, where every year considerable quantities of bricks are manufactured. The production in Boom is about 1,000,000,000 brick, in Brussels 500,000,000 and on the coast nearly 100,000,000. Other brick manufacturers in Belgium produce about 150,000,000 bricks.

All these bricks, except a part of those produced at Boom are used by Belgium constructors.

Each of those big centers manufactures a special kind of brick regarding quality and dimensions and so we have in Belgium three different sizes of bricks.

Boom—5½ cm. by 9 cm. by 18 cm.

Brussels—6½ cm. by 10 cm. by 20 cm.

Sea Coast—7 cm. by 11 cm. by 22 cm.

Generally in Belgium the color of the brick is supposed to be red because its soil possesses big quantities of iron materials; nevertheless the Coast's bricks are yellow, nearly without exception, because chalk dominates in this part of the country through the multiple geological inundations occasioned in the periods of the past.

The best clay grounds lie in the Polder district. This region comprises a large band of earth, several miles wide, extending along the coast, the high Escaut and both shores of the Rupel. These clays are very plastic and produce a very hard and a few porous bricks. These beds of plastic clay are about two yards thick on the coast and attain to a depth of twenty-five yards and more in the neighborhood of Boom.

The hand-making of bricks, which a few years ago was general in Belgium, had already shown a disposition to disappear before the war and mechanical manufacture had largely taken place. Hand-made bricks were still being produced in Boom and Brussels, but had totally disappeared in other parts of the country.

Many manufacturers have constructed continuous kilns, but for the most part the bricks are burned in the old-fashioned kilns as used for many years past in the country districts.

The Right Hon. Minister of Labor and Industry, Monsieur Humbert, made an order in March, 1914, which threw consternation among brick manufacturers. Indeed, his order was an attempt to get rid, in a few years, of brick burning in old-fashioned kilns. This order favored the larger manufacturers who were already provided with modern appliances, including dryers and closed kilns. So that the very existence of the greater part of the manufacturers was threatened. This order was founded on public sanitary grounds, damage being alleged to horticulture by the sulphurous emanations from the old open kilns.

A license for brick manufacturing has to be granted by the Permanent Deputation, on advice of the Borough Administration in the district where it is proposed that the brick man- report of a labor inspector commissioned for this purpose.

The ground for brick making purposes is generally let by the land owners who are paid, besides the rent, an annual amount of compensation for the brick-earth used in manufacture on the basis of the number of cubic meters of extracted clay; on the number of manufactured bricks; or on the surface of the ground involved in providing raw materials for manufacturing.

A minimum payment is generally stipulated in the contract, which obliges the manufacturers at the same time to put in a good thick layer of vegetable earth in substitution of the extracted clay. Contracts of this nature are more advantageous than the purchase outright of the ground, because the capital outlay would be prohibitive, seeing that the ground is depreciated after its use by the brickmaker, though purchase is recommended when the brick manufactory can be established in the neighborhood of a growing town.

Then the property may be used later on for building ground.

We pass over the now superannuated process of brick manufacturing by hand and occupy ourselves exclusively with the brick made by machinery.

Mechanical brick manufacturing as carried on in Belgium does not constitute what may be called model installations. Certainly there are a few modern establishments founded by large capitalists which produce a facing brick of first quality. But the best known mechanical brick manufactory is rather rough, though very practical through its simplicity and strength of production. It requires a minimum area of 4 hectares (nearly 9 acres), the greater part of which is used to place and dry the bricks in hedges of sheds.

Power to drive the pugmill (of vertical type) is produced by a steam engine made in the country or imported from England. During the last few years, prior to the war, some manufacturers used gas engines which did not, however, give full satisfaction.

In the beginning of the winter the earth is ordinarily turned over to a certain depth, in order that the different layers of which the ground is made up, can be well mingled. In this way is obtained a regular and equal brick earth. Moreover, the clay, which otherwise becomes very hard in dry weather, remains always soft and plastic.

A certain quantity of coke ash is mingled with the earth which favors the burning of the brick and also effects the economizing of a large quantity of coal.

The earth is loaded on small trucks and taken to the "Malaxator" of pugmill, which works and kneads it into dough which is extruded through a mouthpiece in the form of a right-angled "saucisson." This "saucisson" is cut in 14 or 15 bricks by wires, and the bricks are carried directly to the hedges where they are stacked for drying.

If no stoppage of work interferes, a gang of workmen make between 4,500,000 and 5,000,000 in a season from the 15th of April to the 15th of September. Such a gang is ordinarily composed of 20 work people.

After about three weeks drying the bricks are fit for putting in the kiln, and a special team of workmen is charged with that kind of work. The form of kilns is totally different from that used in England. The kilns are constructed and the bricks to be burned are placed in stacks. The base of the kiln is first made at a height of 5 or 6 heaps of bricks, each of which is composed of 12,000 to 25,000 bricks, according to the earth possessing more or less intrinsic burning properties. The fire is put in over the whole area, and is put in daily on 2, 3 or 4 heaps, the fire being fed by means offinecoal or coke ash. This method of burning allows the manufacturer to look after the progress of the firing and the proper burning of the bricks, and gives very good results. Personally, I found in burning kilns that I only experienced a waste of one and a half per 1,000 bricks.

The ordinary height of the kilns is generally between 60 and 70 stack of bricks, but the latter is economical, and in a relatively short time, allows considerable production of sound bricks to be realized.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XLI.

COMPARTMENT KILNS (Continued)

AN EARLY KILN developed in this country is shown in Fig. 150, section, and Fig. 151, a partial plan of two compartments of the kiln including the central longitudinal division wall. The floor is solid. The division walls have ports in the bottom spaced about 27 inches. The draft connection is in the corner of each compartment with an up-take flue into the bottom of a main draft flue. The kiln is simplicity itself. The ware is set away from the division walls on each side thus forming combustion spaces in which the firing is partly done through the outer feed holes. Under the intermediate holes the ware is set to form step grates thus spreading out the fuel fan-wise in the mass of ware from top to bottom.

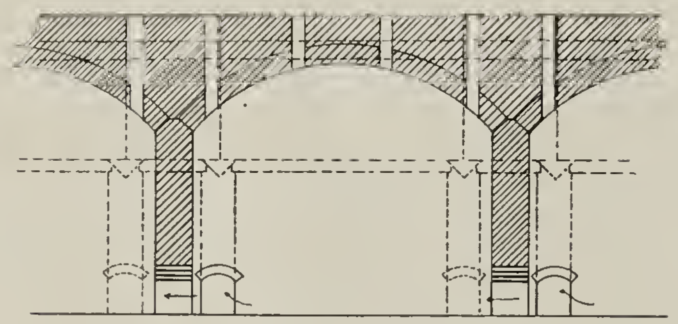


Figure 150.

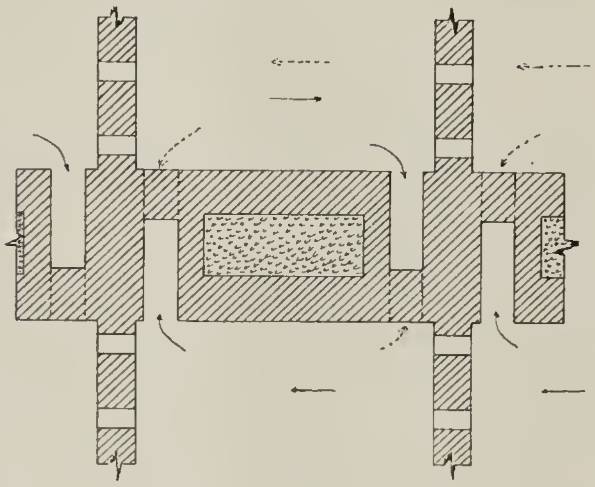


Figure 151.

The combustion gases from the lateral spaces are partly drawn through the lower courses of the ware by means of trace flues set in the ware, and partly pass over the top of the ware, thus burning the top and bottom. The fuel within the mass of ware performs its work locally, and a fairly uniform result is obtained throughout. These results, however, depend largely upon intelligent setting and firing.

A weakness of compartment kilns is the tendency of the division walls to lean in the direction of the draft, and in consequence throw the arch as shown in Fig. 152, and after a few years' use the kiln has to be rebuilt, which, considering the cost, is a serious matter. The life of the kiln depends upon the thickness and solidity of the division walls, their height, the quality of the structural material and workmanship, the rise of the crown and the temperatures attained.

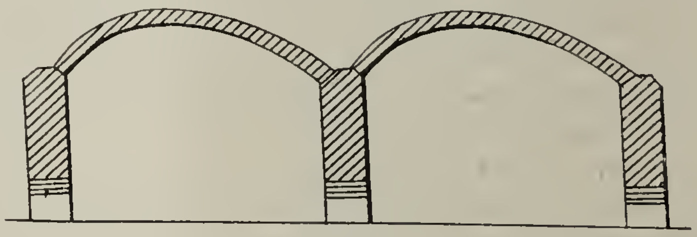


Figure 152.

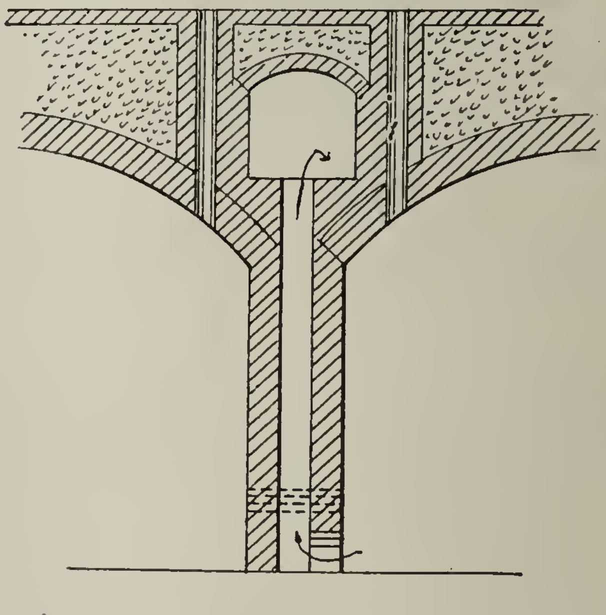


Figure 153.

It has been suggested that the kiln should be designed so that the firing can be reversed annually or semi-annually.

If a kiln is well built, the slight displacement which would occur in six months would be corrected by a reversal of the direction of the firing for a like period or longer as may be required. A simple construction, such as shown in Fig. 150

could easily be designed for such a reversal of the draft. It would only be necessary to carry the compartment draft connections through the middle wall as shown by the dotted lines in Fig. 151, and block them up on one side or the other with temporary walls. A reversal of the firing then would only require that the kiln be burned off and emptied, immediately refilling and firing in the opposite direction, changing, of course, the temporary walls blocking the draft ports.

In a kiln with the draft connections in the corners of the compartments, one would say that there would be a diagonal tendency in the movement of the kiln gases. This is true but it does not materially affect the burning compartment because the draft control is always several compartments ahead of the firing compartment. The cooling effect of the wicket and outside wall forming the end of the compartment would result in underburned ware were it not for heavier firing in the end feed holes, and even then we often do not get the ends as fully burned as the remainder of the compartment.

The diagonal draft does effect the water-smoking and heating up and lagging in this work often continues through the burning.

Fig. 153, section, and Fig. 154, view plan of the division wall between compartments, illustrate a modification of the preceeding kiln to eliminate the diagonal draft. Between the ports in the division wall connecting the compartments, are up-take flues into the bottom of a cross collecting flue which in turn enters a longitudinal main draft flue. If the sizes of the division wall draft flues are properly proportioned we are assured of uniform draft from end to end of the burning compartment. It would, of course, be a simple matter to provide dampers for each of the up-take draft flues, but this is not considered necessary. Even imperfect operation so far breaks up the diagonal tendency that any material or noticeable retardation is impossible.

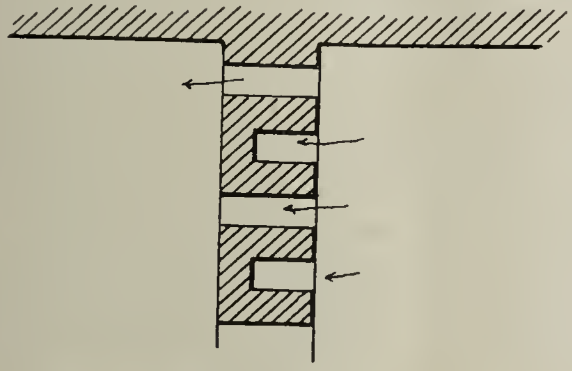


Figure 154.

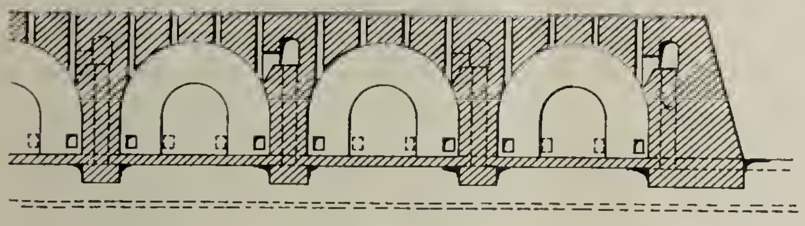


Figure 155.

Another method of overcoming the diagonal draft and at the same time in some degree counteract the cooling effect of the outside wall, is to put a draft outlet in the outer as well as in the inner wall with a down-take from the former to an under-ground cross flue leading to and connecting with the main draft flue, or an up-take to an upper cross flue. Such a flue arrangement with proper draft control enables us to have the draft all to the outer wall, all to the inner wall, or balanced as may be desired. When we consider that any damper within a kiln structure leaks more or less, and in consequence there is always some draft through the damper connection of the burning compartment, it becomes more important that the tendency of the draft should be toward the outer wall where radiation losses are the greatest.

In kilns which have been designed and put in use, one can generally trace a development from the simpler form to overcome some of the difficulties, but occasionally there is a marked departure from earlier types.

Fig. 155, section of the kiln, Fig. 156, plan, and Fig. 157, section of the division wall, show an American kiln which differs materially from the general plan.

The movement of the air and gases in the compartments is longitudinally of the compartment, reversing in the succeeding compartment, in other words, it is that of a zig-zag kiln, and it could very properly be termed a zig-zag compartment kiln.

Presumably the firing in each compartment is more or less progressive. As the fires slacken, or cease in the entering end of the firing compartment, air becomes available to start or increase the fires toward the other end.

The connection from compartment to compartment is a single opening at one end of each division wall, alternating so that the movement of the air and gases is forward through one compartment and backward through the next, continuing thus from the entering cooling compartment to the exit water-smoking compartment. The collecting draft flues are between the kiln crown arches, above the crowns, immediately over the division walls, but each extends only half the length of the compartments, and they alternate in the successive compartments. These flues are connected on the underside of the kiln crown to the adjacent firing holes, and at the outer ends connect with a down-take flue in the outside wall, thence into an under-ground main draft flue.

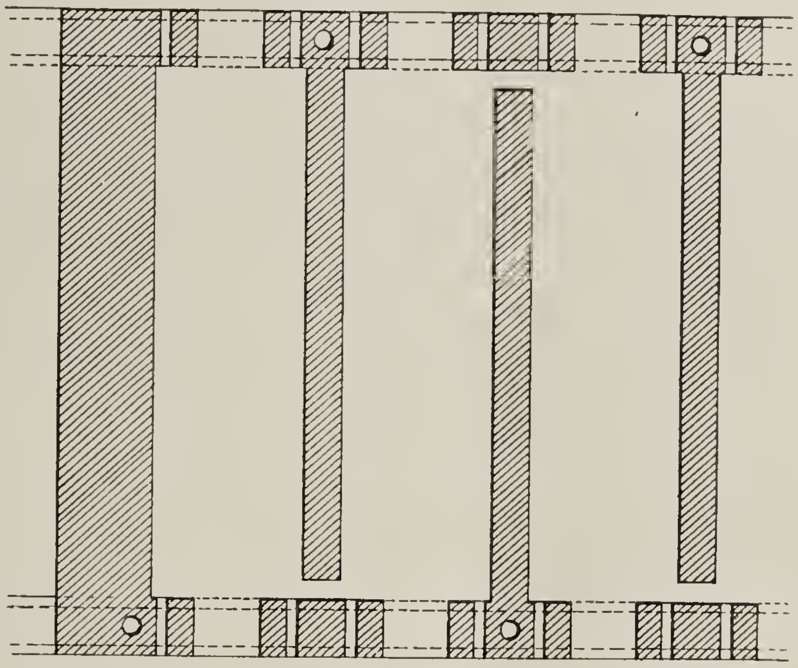


Figure 156.

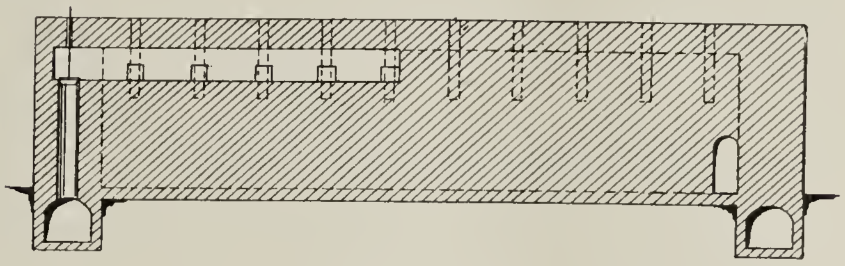


Figure 157.

The compartment connection is in one end of the division wall and the draft connection is in the other end, the position alternating in the consecutive walls.

Trace and vertical firing flues are set in the ware and the firing is the usual top coal operation with the addition that, through holes in the side and wicket walls corresponding with the trace flues in the ware, the accumulations of ashes in the trace flues under the feed hole flues can be raked out, or leveled down and thus keep the active combustion near the kiln floor and provide free passage for hot air through the lower courses of the ware at all times.

The operation of the kiln is in outline as follows:

The air enters as usual through the compartment from which the ware is being drawn, and traverses the several cooling compartments longitudinally, forward and backward, finally entering one end of the burning compartment where it comes in contact with the fuel. The combustion gases continue the forward movement through the heating-up compartment into the water-smoking compartment where they are drawn off through the connected feed hole shafts into the collecting draft flue, thence to the down-take and main draft flue. The top draft is claimed as a feature of the kiln in that as the vapor rises from the water-smoking ware it is drawn off to the stack instead of being drawn down through the ware and condensing there-on as frequently happens in down-draft operation.

(To be Continued).

SPECIAL POTTERY REPORT.

A SPECIAL and more detailed report than that included in the preliminary report of the clay industry as a whole has been issued by the U. S. Geological Survey and in connection with it there is a tabulation showing the production of different divisions of this industry.

The total production for 1918 was valued at $65,222,951 compared with $56,162,522 for 1917. The product is divided into the following times:

Pottery Products for 1918.

Red earthenware	$ 906,861
Stone ware and yellow Rockingham	4,454,164
Chemical stone ware	1,547,779
Chemical Porcelain	221,931
White ware	25,305,926
China ware	6,307,349
Sanitary ware	11,241,138
Porcelain electrical supplies	12,505,970
Miscellaneous	2,731,833
Total	$65,222,951

The only item showing a decrease as compared to 1917 was sanitary ware which, like other products entering into building materials, was curtailed under various war restrictions. The greatest increase was shown by white ware followed by electrical supplies.

This preliminary review points out that a notable event of the pottery industry of 1918 was the placing in the White House of an American made state dining set which is described in the final report to be issued by the Survey.

Ohio led as a producing state, producing nearly 40 per cent of the total. This state's principal product was white ware and the value of the white ware made in Ohio was 61 per cent of the total of the country. Columbiana and Mahoning counties, Ohio, and Hancock, West Virginia, contiguous territory, form the largest pottery center of the country, a center that grew out of the industry started at East Liverpool, Ohio, in 1840. The value of the pottery marketed in these three counties in 1918 was more than 17 million dollars.

New Jersey was the second largest producing state, the product there running largely to sanitary ware, which constitutes nearly half of the state's pottery product.

West Virginia was third as a pottery producing state. New Jersey, Ohio and Pennsylvania each reported some of every kind of pottery classified separately by the Geological Survey, while New York reported every kind except stone ware.

The pottery imports for the year amounted to $6,393,580, a slight increase over 1917. The value of export pottery was $1,479,552, an increase of 5 per cent over 1917.

Adding the total of pottery imported to that produced in the United States and deducting from this the exports shows a domestic consumption for the year of $70,066,880, of which 93 per cent was made in this country.

THE CLAY MINING INDUSTRY.

CLAY MINING as an industry is getting on its feet in good shape, notwithstanding the total amount mined and shipped in 1918 was less in quantity than that of 1917. There were restrictions which held down the shipments and while the quantity was less the total value was higher.

The total quantity of clay mined and marketed is estimated in a preliminary report of the U. S. Geological Survey of 2,810,000 short tons valued at $9,207,000 or $3.28 a ton. This is a decrease of 10 per cent in quantity and an increase of 14 per cent in value.

Fire clay is the product of greatest value, the 2,200,000 tons produced being valued at $6,600,000, or $3 a ton. This is a decrease of about 148,000 tons, or 7 per cent, in quantity, but an increase of $975,000, or 17 per cent, in value compared with 1917. Kaolin, paper clay, ball clay, fire clay and "all other" clay decreased in output, but only one kind—paper clay—decreased in value. The kaolin, which was used principally in the manufacture of high grade pottery, amounted to 27,000 tons, valued at $340,000, a decrease of 5,000 tons, or about 15 per cent, but an increase of nearly $39,000, or 13 per cent. The average price of kaolin a ton was $12.59 at the mine, an increase of $3.14. The output of ball clay, which is also used largely in pottery, was 82,000 tons, valued at $651,000, a decrease of 25,000 tons, or about 24 per cent, in quantity, but an increase of nearly $82,000, or 14 per cent, in value. The average price of this clay per ton in 1918 was $7.94, an increase of $2.64 compared with 1917. Paper clay, another valuable variety, the principal use of which is indicated by its name, decreased in both output and value, the decrease in quantity being about 63,000 tons, or 36 per cent, and the decrease in value about $24,000, or 3 per cent. The output in 1918 was 111,000 tons, valued at $938,000.

Production of clay in the United States in 1917 and 1918.*

Kind	Quantity (Short tons)	Value	Ave. Price Per Ton
1917.			
Kaolin	31,885	$ 301,378	$9.45
Paper clay	174,449	962,421	5.52
Slip clay	16,972	70,505	4.15
Ball clay	107,406	569,240	5.30
Fire clay	2,347,972	5,625,095	2.40
Stoneware clay	81,352	113,839	1.40
All other	353,808	400,068	1.13
	3,113,844	$8,042,546	$2.58
1918.			
Kaolin	27,000	$ 340,000	$12,59
Paper clay	111,000	938,000	8.45
Slip clay	20,000	100,000	5.00
Ball clay	82,000	651,000	7.94
Fire clay	2,200,000	6,600,000	3.00
Stoneware clay	90,000	158,000	1.76
All other	280,000	420,000	1.50
	2,810,000	$9,207,000	$ 3.28

*Estimated.

Clay Imports.

The imports of clay decreased 72,701 tons, or 27 per cent, in quantity, and $123,265, or nearly 9 per cent, in value. The only clay that was imported in large quantities was kaolin, 168,100 short tons of which was entered for consumption, valued at $1,153,240, or $6.86 a ton, at the port of shipment, a decrease of 72,929 tons, or 30 per cent, in quantity, and of $162,529, or 12 per cent, in value. The average price per ton increased $1.40. The imports of clay other than kaolin are comparatively small. In 1918 kaolin constituted 86 per cent of the total quantity and 87 per cent of the value of clay imports.

Imports of clay in 1917 and 1918.

Kind	Quantity (Short tons)	Value
1917.		
Kaolin or china clay	241,029	$1,315,769
Common blue	88	709
Unwrought or unmanufactured	26,581	123,439
Wrought or manufactured	338	2,142
	268,036	$1,442,059
1918.		
Kaolin or china clay	168,100	$1,153,240
Common blue	114	983
Unwrought or unmanufactured	26,984	163,484
Wrought or manufactured	137	1,087
	195,335	$1,318,794

EXPORTS OF THE FISCAL YEAR.

According to figures of the Bureau of Foreign and Domestic Commerce our exports of clay and clay products for the fiscal year ending with June consisted of fire clay, 44,002 tons, valued at $296,108. Other clay, 24,018 tons, valued at $217,804. We shipped abroad 6,553,000 building brick valued at $127,752 and 58,206,000 fire brick valued at $3,836,143. Other items were, china ware, $473,910; earthern ware and stone ware, $1,495,593; sanitary ware, $510,433; tile other than drain, $532,570. All other, $790,163. This makes a total of $7,766,564 in clay products and $513,912 in clay.

BRICK FOR ENGLAND.

Mention has been made in the columns of the Clay-Worker from time to time of the great need for brick in England and the tremendous shortage that country is facing at the present time in brick for reconstruction work. The presumption was and still is that this condition creates a need and market for American brick machinery and especially such machinery and equipment as will increase production and save labor.

Now comes J. S. McCann, Managing Director of the Brazilian Commerce and Industries, with head offices at 17 College Hill and 24 College street, London, and a branch office at 99 Nausau street, New York, with a suggestion that there is opportunity for a large trade in England for American brick if our brickmakers can deliver them cheaply and compete with English ruling prices. Also they express a desire to have offerings direct to their London house as they think shipments can be made at low rates if small sailing crafts could be chartered, say of about 400 or 500 tons.

There is an if involved here which those near tidewater may be able to get around or overcome for the time being and thus develop a temporary outside market for building brick. Also it suggests an opportunity for the introduction of face brick, which, because of higher value will stand a little more shipping expense. Brick being a heavy product there is a possibility of securing favorable ocean going rates if the right connections can be made. So while as a general proposition the main opportunity in the long run in England appears to be for the sale of machinery and labor saving devices, there is evidently a chance of trade in the brick product itself during the reconstruction days that should be worth looking into.

Written for The Clay-Worker.

SEEN IN NEW JERSEY.

BUILDING OPERATIONS IN New Jersey are on the boom. Contracts are filed every day and for the month the aggregate is larger than it has been during any month since the war began in 1914. All sorts of buildings are included, dwellings, of various types, mills, public buildings, like school houses and similar structures, and any number of other types which are so badly needed. The expense of building is so large that it is deterring some who may come to the terms later, but at present they are more or less conservative about beginning operations. But the work must be done. Not a city or town in the state has sufficient dwellings for its population. In some of the largest cities not a vacant apartment can be found. In the smaller towns every house is taken and innumerable instances are reported where families have sought for months in vain for a new dwelling. If this was true in only one or two it wouldn't make so much difference to scores and hundreds of families who want homes, but it is the common story of them all, and until building catches up with population no change is possible. The same thing applies to mill and other manufacturing establishments. Every one is occupied and many new firms are waiting for space to start operations. Contracts for these structures are filed every day, and yet the work itself hasn't caught up with demand. Nor will it this year. Next season the building trade should open active and the development of the industry should exceed anything the state has known in many years.

Brick is in fair demand in most of the cities of the state. Prices are a shade higher than they were a month ago. In Newark they are from $17.50 to $19.00, the latter price on the job. In Jersey City they are from $18.00 to $19.00 delivered on the job. In Paterson the price ranges from $17.00 to $19.00. In Trenton they are lower and can be bought for $16.00 and are $17.50 delivered. In New Brunswick the price is around $17.00. In Passaic a scarcity developed and up to $18.00 was asked. Hackensack is getting $15.00 to $16.00 at the yards. Englewood reports $18.00 delivered. Rutherford is paying up to $18.00. Face brick is ranging at about the same price as quoted last month and enameled brick are a shade higher. The demand is not as active as it was the latter part of August, but a good many contracts are now in process of fulfillment and therefore considerable call is noted. Some are of the opinion that the bulk of the demand for this season is over unless the fall should be long and warm. Then perhaps the demand will continue late and compensate somewhat for the lack of business during the previous months. Manufacturers and selling agents are getting a good many inquiries and they look forward to a better business during the remainder of the season and the opening of next.

The Hackensack yards continue busy and are distributing their brick by motor truck this year. Not a car has been shipped this season and the old schooners which have taken the brick down the river to New York are not yet back in service. They were wanted for war purposes and are more valuable than carrying brick. Motor trucks have solved the problem of delivery from the unhandily located yards. The bulk of the business has been nearby so they could carry the product comfortably. Paterson has taken a good deal of the product that is only eight miles. A truck can make a unmber of trips in a day. The Hackensack Brick Company has been busy all the season and its yards are now filled with the next burning. Demand has outrun supply in some instances. They could have sold a good many more than they were able to make. Henry Gardner is another whose yards have been busy to capacity and I. E. Gardner has had plenty of business to keep his yards in operation. Labor shortage has effected them somewhat, but on the whole they have had a good season and will be able to get out one, possibly two, burnings more before cold weather sets in. Hackensack yards have been more active this season than for the past four years.

At Mountainview the Standard Brick Company has been running to virtually capacity all the season. The only drawback has been lack of labor. The sale has been equal to the output and very little surplus will remain after the season closes. The clay pits for this establishment are some distance from the sheds and they are so low that a pump must be kept running all the time in order to keep the water down. The quality of the brick turned out is good and a ready sale awaits all the firm makes. No development other than the ordinary business of the season was undertaken this year, but with good business promised for next year the situation is likely to be better.

Paterson is to see a development in mill construction within the next year or two which will exceed anything since the great fire of 1902. A number of contracts have already been signed and architects have more plans on their tables. The latest contract made by the Silk Realty Company for a mill 63x284 feet, four stories high, brick, to cost $147,000. Work is to begin as soon as plans are ready. Half a dozen others are to come along shortly. The manufacturing portion of the new buildings are greatly inadequate for requirements and many new ones will have to be constructed to bring the total of floor space up to demand. In the meantime the city has roused itself and is to build two grade school houses which will cost in the neighborhood of $750,000. The plans are under consideration now. Later it will follow with a new high school that will cost a quarter of a million. These are only a few of the new structures planned within the next few years. And so far as dwellings are concerned at least 1,000 are needed now. The erection of the new mill for which contracts have been signed will force the erection of a great many dwellings for it goes into what is now an undeveloped portion of the city.

In Newark it is quite impossible to outline what must be done. The need in all classes of building is so great that one can hardly say where to begin. It is understood, however, that many new apartment houses and similar structures for dwellings are to go up this coming season. Architects are said to be busy on numerous plans for such structures which will come out the latter part of the winter. Factory buildings of various sorts will be innumerable. No end to them can be discovered and the number that is reported each week exceeds anything Newark has seen in years. And the city has been one of the fastest growing in the country.

New Jersey is free at the moment of labor troubles in the building trades. An effort has been made to stabilize conditions and the success which has resulted has stopped misunderstandings and difficulties for a time, at least. But the wages are high and that has forced up the cost of construction until a great many hesitate about beginning operations under such conditions. It is plain, however, that regardless of their inclinations they will have to build, even with prices as high as they are now. The buildings are imperatively needed and whether the price of construction suits or not they will have to go up. Next spring will probably see an opening without the usual misunderstanding with workers which always causes uncertanity and in numerous instances in the past has brought about serious delays.

This season a great many farmers have been erecting silos of burned clay. The number exceeds any hitherto put up. Tile is used and sometimes brick is the material. But they have found that wood hardly meets the requirements, and, besides, it has grown so expensive that they prefer to use clay instead of wood. The stability of clay appeals to them, too, since it is fire-proof and acid proof and considerable acid develops some times in a silo. More and more of these are seen as one goes through the state, and the number of silos that are in process of erection or provided for is said to be large, most of them of some form of burned clay.

Nathan H. Sloan, broker, of Paterson, reports inquiry much larger and sales considerably better than they have been for more than two years. He is getting more business than he has had since the war upset things and basing expectations upon inquiries is anticipating a greatly increased business the coming season. He has added a number of new lines to his stock and now has a collection of samples from which the builder of any type of structure, plain or ornate, can select the material he wants. Representing only the best firms he is in position to satisfy requirements for any type of brick in any quantity.

Builders who must have brick delivered by rail are still much bothered by the difficulty of getting their merchandise through. It is unsafe to place any dependence upon delivery at a specified time for it will not come. Sometimes the cars containing brick are from one week to a month late and no one seems able to find them. Ne explanation is given when it is asked and perhaps none can be given. But it is annoying and sometimes expensive to have such delay occur when the bricks are needed most. The only safe way is to order long in advance. —A. L. B.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

IN Massachusetts considerable building is in progress, but the full activity has not yet developed. More sales of brick are reported than for the past two or three years and inquiry is large enough to indicate that more is to come. The prices vary. In Boston brick are $18.00 delivered on the job. In Worcester the same price is asked, though $17.00 has been the quotation in some instances. In Springfield the price is $16.00 to $17.00, Holyoke asks $16.50. Greenfield is getting $18.00 and these prices seem to prevail in most of the cities of the state.

The Holyoke Brick Company, at Holyoke, Mass., has been operating to capacity all summer and is now preparing for another burning, expecting to turn them out before cold weather comes. The demand has about taken the supply so that the surplus will not be heavy this fall. Building in this vicinity has developed some, but not as much as it will in the next year or two.

W. H. Holmes, of the Holmes Brick Company, New Britain, Conn., says that the conditions in that state are satisfactory this year to a certain point, but the state will not produce more than one-half of the capacity if its yards, which will run about 100,000,000. Next year he sees better business for all manufacturers. The New Britain yards are operating to as near capacity as conditions of labor and other difficulties allow.

John Johnquest, of Waterbury, Conn., has bought the Hilldale Brick Company and begins operations at once. The plant has been idle for sometime, but a growing need for brick in that vicinity and within reach has caused him to buy the plant and start it again. —HIRAM.

Picking on the packers has been a sort of favorite indoor sport of the Federal Trade Commission for some time now, but so far there has been no producing of a real remedy for the high price of meat.

REFRACTORIES

BASIC REFRACTORIES FOR THE OPEN HEARTH.

By J. Spotts McDowell and Raymond M. Howe, Pittsburgh, Pa., New York Meeting, February, 1919.

No. 3. Laboratory Tests.

THE FIGURES GIVEN in Table 7 illustrate the tendency of lime to lower the reacting temperature and to increase the chemical activity of the basic refractories. It is probable that the temperatures shown are much too high for practical limits of safety, and that they are only relatively true.

The firebrick formed a thin liquid and ran into the magnesite; the shadows in Fig. 2 show where the firebrick had been. The silica brick cones behaved differently and can be seen as they were at the end of the test, having cut away the magnesite without the formation of a visible slag.

Basic refractories, besides withstanding slaking and erosion, must resist considerable chemical action. Carbon, phosphorus, and silicon are present in the metal bath in the form of carbides, phosphides, silicides, or in an oxidized condition. The lining is necessarily exposed, at least locally, to the corrosive influence of silicon and phosphorus in the melt until they are removed. A series of tests was, therefore, conducted for the purpose of studying the action of phosphorus compounds on the six basic materials. Other tests, in which the action of melts containing varying percentages of silicon and phosphorus are studied, are still under way.

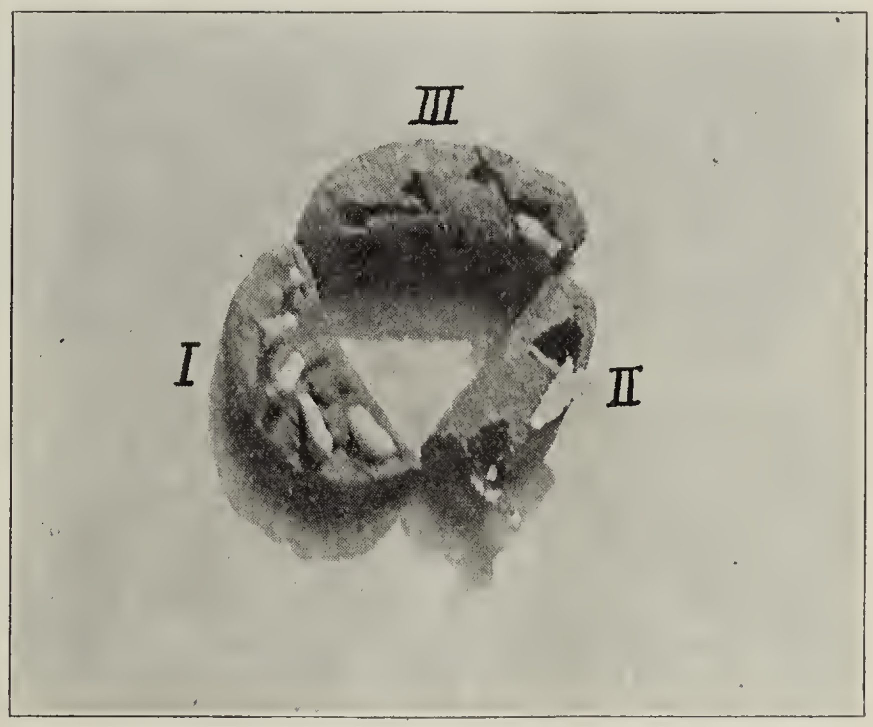
Table 7.—Reacting Temperatures in Orton Cones between Basic Materials and Brick.

Material	Fire Brick	Silica Brick	Lime Content of Basic Material, Per Cent
A............	Cone 20	Cone 26+	3.16
B............	Cone 18	Cone 18+	18.96
C............	Cone 15	Cone 16	49.19
D............	Cone 15	Cone 16	48.15

Crucible Tests.

The general plan was to make crucibles of the different products, heat them to a certain temperature, introduce a corrosive mixture, allow it to react for equal lengths of time upon the different crucibles, cool, and analyze the melted portion for silica, lime, and magnesia. Since these three oxides could come only from the crucible their presence in the melt would prove chemical action.

Crucible series 1 involved the use of crucibles 3.5 (8.8 cm.) in diameter and 2.5 in. (6.2 cm.) in height, made from the materials as received and bonded by means of gum tragacanth. It was impossible to make crucible of the above type from material F so the basic materials were packed in fireclay crucibles 3 in. (7.6 cm.) in diameter and 4 in. (10 cm.) in height in series II, III, and IV. In each case the corrosive mixture added consisted of one part ferrophosphide and two parts ferric oxide, which was used to oxidize the phosphide and was itself reduced in the process. The mixture was added to the hot crucibles by means of an iron ladle. At the conclusion of the melting period the crucibles were cooled, sawed vertically through the center, and samples taken from the melt for analysis.



Figue 2. Pats Showing Action of Magnesite upon Firebrick and Silica Brick. I. Orton Cones in Clay Pat. II. Silica Brick Cones in Magnesite Pat. III. Firebrick Cones in Magnesite Pat.

In the first series of tests the crucibles were heated to 1350° C., 100 gm. of the corrosive mixture was added and allowed to react at this temperature 2 hr. The crucibles are shown in Fig. 3. In the second series, the crucibles were heated to 1300° C. when 100 gm. of corrosive mixture was allowed to react upon them for ½ hr.; the action at the end of this time was too slight to be determined. In the third series of tests, the crucibles were heated to 1300° C. and 100 gm. of corrosive mixture was allowed to react at this temperature for ½ hr.; then the temperature of the furnace was increased to 1350° C., 50 more gm. of mixture was added, and the temperature held constant for ½ hr. The extent of the corrosive action is shown by Fig. 4. The fourth series of tests was conducted by heating the crucibles to 1300° C. and adding 100 gm. of corrosive mixture; after ½ hr. the furnace temperature was raised to 1350° and 50 gm. more introduced ½ hr. later an additional 50 gm. of mixture was added and the temperature maintained ½ hr. longer. Partial analyses of the slags resulting from these tests are given in Table 8.

The analyses of the slags from crucibles C, D, and F in the fourth series should not be compared with those of the same crucibles given in the preceding series, since under the more severe conditions of this test additional reactions came into play. The Fe$_3$P-Fe$_2$O$_3$ mixture had eaten through the bottoms of crucibles C, D, and F as shown in Fig. 5 and a series of reactions resulted between the corrosive mixture, the basic material, and the clay of the crucible, with the formation of a very active fluid slag. The silica, lime, and magnesia contents of this slag were influenced by the action of the clay as well as by that of the phosphorus.

Table 8.—Partial Results of Crucible Tests.

Material	Analyses of Slags from First Series				Analyses of Slags from Third Series				Analyses of Slags from Fourth Series				Order of Resistance to Corrosion
	Silica	Lime	Magnesia	Total	Silica	Lime	Magnesia	Total	Silica	Lime	Magnesia	Total	
A........	0.00	0.12	1.30	1.42	0.21	0.08	0.35	0.64	0.32	0.04	1.23	1.59	First
B........	0.31	0.10	1.33	1.74	0.34	0.22	1.55	2.11	0.74	0.46	3.52	4.72	Second
C........	0.64	0.81	0.69	2.14	2.24	1.42	1.58	5.24	6.20	7.48	4.18	17.86	Fourth
D........	0.64	1.48	1.47	3.59	9.98	4.55	6.86	21.39	18.90	22.14	14.90	55.94	Sixth
E........	0.51	0.83	0.64	1.98	1.82	1.13	1.58	4.53	1.56	1.44	1.53	4.53	Third
F........					1.72	5.37	5.42	12.51	24.51	12.70	8.12	45.34	Fifth

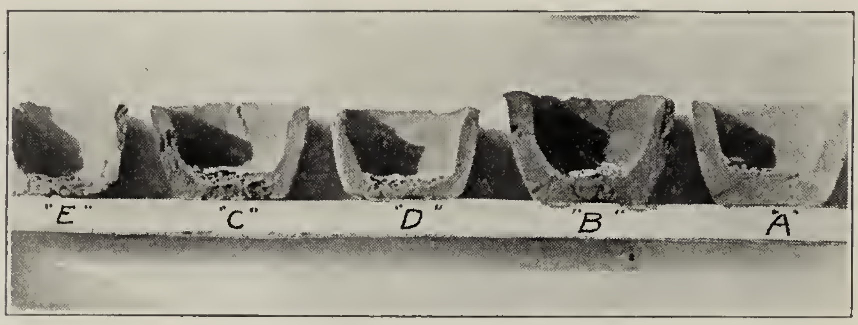


Fig. 3. Crucibles Used in Crucible Series I.

These tests show that the relative corrosion of the various basic materials places the low-lime magnesite first in resistance to the action of the corrosive mixture, the high-lime magnesite second, a calcined dolomite third, a treated dolomite fourth, another calcined dolomite and a treated dolomite fifth and sixth respectively. The materials lowest in lime offered the most resistance to the action of this corrosive mixture. The superiority of the low-lime magnesite, the intermediate position of the high-lime magnesite, and the general lower resistance of the dolomites establish this conclusively. Other oxides as well as lime were taken into the solution but the intensity of this action seems to have been dependent on the amount of lime present. Only limited conclusions can be drawn from these results. Other factors being the same, it should be expected that the basic refractories lowest in lime should give the best service where exposed to the corrosive actions of melts in which phosphorus is the principal corrosive agent. However, the relative value of the materials studied can merely be approximated.

Analysis of the slags from the specially treated dolomites gave unexpected results. Material C showed slightly greater resistance to corrosion than the calcined impure dolomite E; at the same time material D, another specially treated product, was decidedly inferior to E and F, both dolomites that had been calcined without any effort to coat or protect the granules by special methods. To what extent the special treatment accorded the patented dolomite products is an advantage in increasing the resistance to corrosion is open to question.

Tests Upon Dead-burned Magnesite and Magnesite Brick.

The preceding tests have served to distinguish between magnesites and dolomites. The latter part of the work applies to magnesites only, and the tests were made somewhat more severe in order to secure more pronounced results.

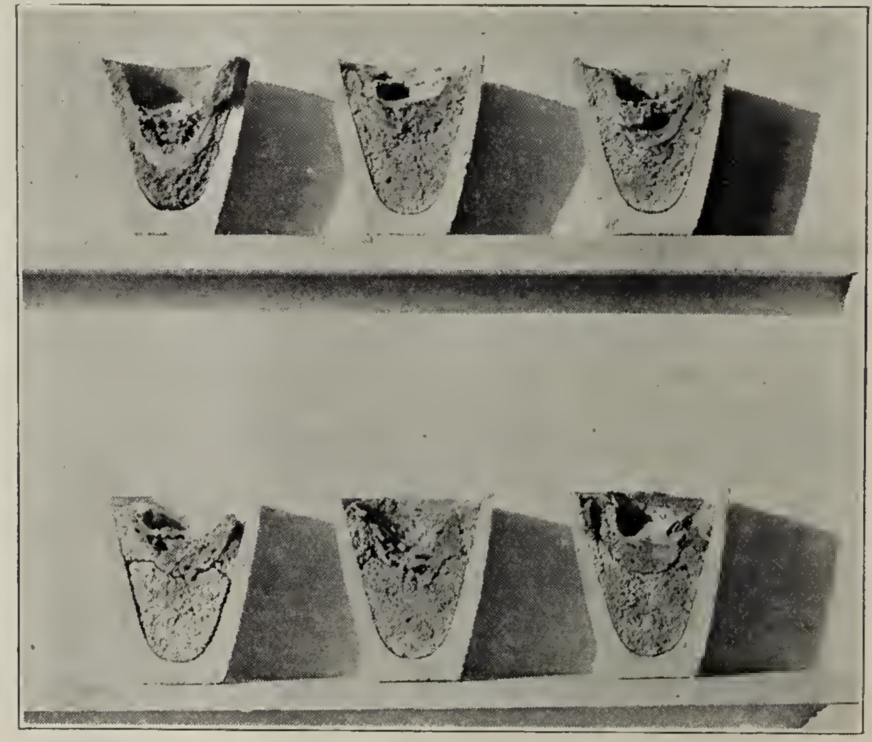


Fig. 4. Crucibles Used in Crucible Series III.

Crucible Tests on Magnesites.

Crucibles made of magnesite grains were subjected to tests similar to those described but under more severe conditions. Crucibles like those employed in the first series were used and 600 gm. of the corrosive mixture added hourly in 150-gm. batches. A temperature of 1350° C. was maintained for 4 hr. The marked superiority of magnesite A, in resistance to corrosion, was shown in the preceding experiments and is developed even more strikingly in this one.

Load Tests.

It seems probable that unsatisfactory service would be caused by any marked softening of the bottoms, for the boiling of the bath will have a greater tendency to scour out holes in a hearth that is soft than in one that is more rigid. In order to study the rigidity of magnesite A and B at high temperatures, bricks having the compositions given were made from each by the usual brick-making methods, and subjected to a load test. These brick were heated under a load of 25 lb. per sq. in. (1.7 kg. per sq. cm.), applied on the end of the brick with a temperature increase of 250° C. per hr., until failure resulted. Brick A failed by shearing at 1555° C., evidently due to a breaking of the bond; brick B did not shear but softened and settled at high temperatures. By the time 1450° C. had been reached, it had shortened 12.5 per cent. of its original length, see Fig. 6.

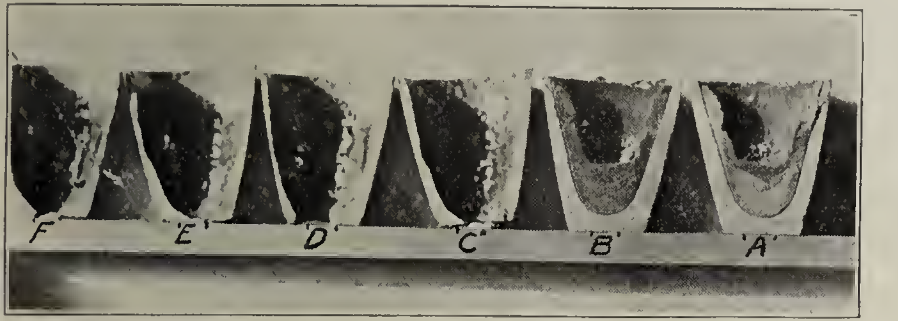


Fig. 5. Crucibles Used in Crucible Series IV.

Table 9.—Partial Analyses of Slags From Crucible Tests.

Material	A	B
Silica	2.56	2.96
Lime	0.40	2.28
Magnesia	2.46	6.38
Total	5.42	11.62

Table 10.—Analyses of Magnesite Bricks Tested.

Material	A	B
Ignition loss	0.26	0.37
Silica	7.26	5.72
Alumina	2.14	2.00
Ferric oxide	4.95	5.94
Lime	3.18	15.05
Magnesia	82.40	70.84
Total	100.19	99.92

Since magnesite A shows no evidence of softening at the temperature of the test while magnesite B shows considerable, it is to be expected that the former should show greater resistance to the erosion of boiling metal than the latter.

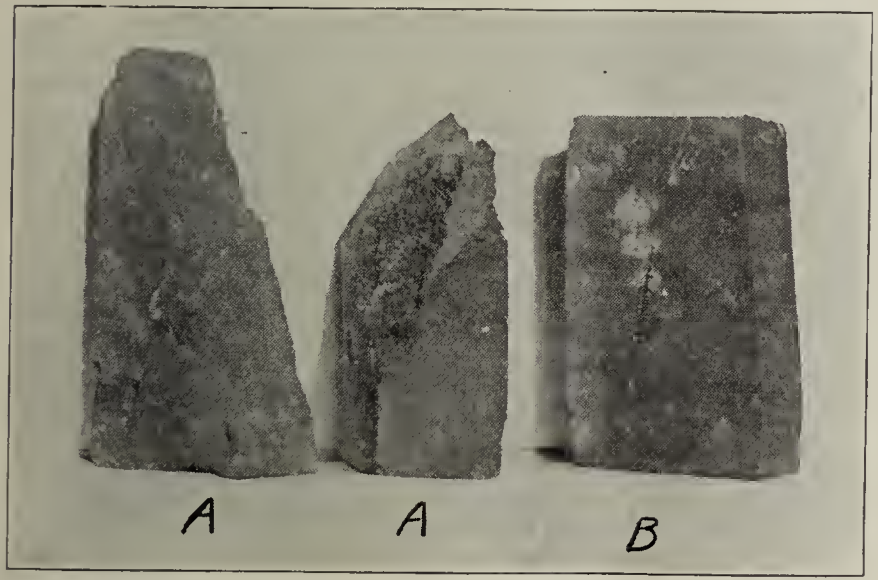


Fig. 6. A Typical Failure of Brick A in Load Test. B. Failure of Brick B in Load Test. Original Dimensions 8.75x2.53 inches; Final Dimensions, 7.66 in. x. 2.72 in.

Fusion Tests.

The difference in softening temperatures of the two magnesites indicated that fusion-point data might be of value. It was hoped that the fusion points of the magnesites and also of intimate mixtures of finely ground slag and magnesite might be obtained. Were the latter possible, comparative values could be established. One could state, for example, that a mixture of 80 per cent. of magnesite X and 20 per cent. of slag was equivalent to a mixture of 60 per cent. of magnesite Y and 40 per cent. of slag. Cones were accordingly made up, some of 100 per cent. magnesite and others of magnesite mixed with from 10 to 90 per cent. of basic open-hearth slag.

It was first necessary to devise a method for placing the test pieces in material that would be neutral to both cones and magnesite. After several failures, successful cone pats were made in the following manner. One half of the pat was made of fireclay and Orton cones were placed in this; the other half, in which the test cones were placed, was made of magnesite. The two half pats were joined to form a disk 3 in. in diameter and finely ground chrome ore used at the junction to separate the magnesite and fireclay. The disk was then placed upon a fireclay pedestal that had been sprinkled with crushed chrome ore. This combination was necessary to prevent the magnesite from attacking the high-temperature Orton cones, or the fireclay of the pat.

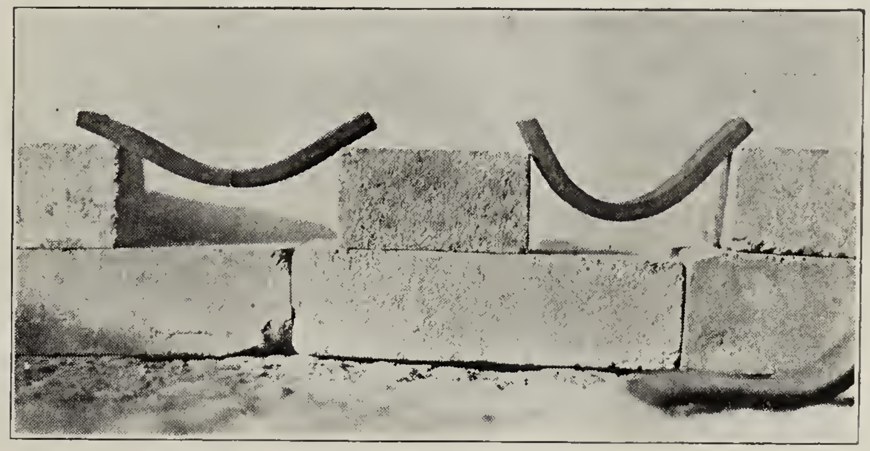


Fig. 7. Typical Bar Test Results.

When the method for conducting the tests had been devised, it was found that the slag ran from the cones at high temperatures and left a magnesite shell standing. The results of such tests were therefore disappointing. Slightly better but inconclusive results were obtained when ferric oxide was used in place of the slag. Cones of 100 per cent. magnesite also gave poor results, because of the tendency of this material to volatilize at high temperatures.

Bar Tests.

The load test indicated differences in the softening points of magnesite A and B but the attempted study of fusion points revealed nothing. It was hoped, therefore, that a series of bar tests, conducted in the following manner, would combine information that might have been secured from the other two.

Magnesite and basic open-hearth slag were ground to pass 60-mesh, weighed out in the proportions indicated, and mixed with gum tragacanth. The mixtures were molded into bars 1 in. x ⅜ in. x 6 in. (2.5 x 0.9 x 15 cm.), which, when dry, were strong enough to be introduced into the furnace. They were laid flat on silica brick and heated to 1250° C., a temperature sufficient to produce a certain amount of sintering. The sintered bars were placed in a test furnace and supported between bricks placed 4½ in. (12 cm.) apart, being separated from the latter by chrome ore powder. The furnace was then heated at the rate of 100° C. temperature increase per hour, and the softening points were observed. The observations are given in Tables 11 and 12.

Table 11.—Bar-test Data with Magnesite A

100% A†	Samples broke
70% A + 30% slag*	1370
60% A + 40% slag*	1350
50% A + 50% slag*	1350
40% A + 60% slag*	1350
30% A + 70% slag*	1345
25% A + 75% slag*	1340
20% A + 80% slag*	1330
15% A + 85% slag*	1320
10% A + 90% slag*	1310

†Too refractory to become bonded by this treatment.

*Action complete (sagging of 2 in.) in about 2 min.

These mixtures showed no evidence of softening until the temperature of failure had been reached. In the entire series sagging began at a point above the fusion point, which melts at 1290° to 1300° C.

Table 12—Bar-test Data with Magnesite B.

100% B†	1285
95% B + 5% slag†	1280
90% B + 10% slag‡	1260
85% B + 15% slag*	1275
80% B + 20% slag*	1280
70% B + 30% slag*	1260
60% B + 40% slag*	1250
50% B + 50% slag*	1260

†These bars sagged about 1 in. in 1 hr. when 1350° C had been reached.

‡Had sagged 2 in. at 1340° C.

*Had sagged 2 in. at 1350° C.

All magnesite B bars, as shown in Table 12, began to soften about 1 hr. before the action was complete (when they had sagged 2 in.), and at about the melting point of the slag or a trifle lower. The temperatures at which the bars had sagged 2 in. were nearly the same when appreciable amounts of slag were present.

The results of the bar test are not easy to interpret and it is not possible to state that the softening tendency of a slag-magnesite mixture of one series is equivalent to that of a definite mixture of the other. Failure of the bars evidently occurred through softening and fusion of the slag. The melting temperature of the latter seems to have been raised by admixture with magnesite A, and depressed by magnesite B. What the significance of the latter fact may be is not clear.

Summary.

1. Comparison of Low-lime and High-lime Magnesite.—The magnesite that was the lower in lime showed less tendency to slake and higher refractories, as well as great resistance to attack fireback and silica brick, and to the action of the corrosive mixture.

2. Comparison of Dolomitic Materials.—The materials highest in impurities and lowest in lime were most resistant to slaking. With one specially prepared dolomite C in which the granules had been coated with basic open-hearth slag, the inherent tendency of dolomite to slake had been overcome to a great extent. Another special preparation of similar character D showed practically the same degree of slaking as the untreated dolomites. The specially treated dolomite C withstood the action of the corrosive mixture not quite as well as an untreated dolomite high in impurities, and much better than the second special preparation D. Except material D, the purest dolomite showed the poorest resistance to corrosion, although this may perhaps be explained by the high ignition loss of the material as received and used.

3. Comparison of Magnesite and Dolomite.—The magnesites are more resistant than the dolomites or dolomitic preparations to slaking, also to the action of the corrosive mixture and that of fire clay and silica. One of the specially treated dolomites has a slaking tendency so low as to group it with the magnesites as far as this property is concerned. However, in resistance to corrosion it compares more closely with the untreated calcined dolomite high in impurities.

ENTREPRENEUR.

Dorr E. Felt, head of the Felt & Tarrant Mfg. Co., Chicago, and president of the Illinois Manufacturers Association, has introduced a new factor into the time-honored wrangle between capital and labor with that good old word derived from the French, "Entrepreneur." In a pamphlet on the subject of college made utopias and labor unrest he says that in much of the discussion the only elements mentioned as involved in modern economics are capital and labor. He contends that the most important factor is the entrepreneur, that is the man who takes the risk and makes the wheels go round, not so much by investment of his money as by giving his time and often his health to the intensive labor and effort which is sometimes referred to as "directive faculty." Obviously, he also frequently risks money. It is refreshing to have a new angle to this situation even though the word itself is not new. It is good old word derived from the French which is synonymous relative of our more commonly used word "enterprise." And undoubtedly, as Mr. Felt argues, the demands on the part of labor and those who are arguing for labor to have a "voice in things," tends to discourage new enterprise and the investment of capital, and thus eventually react to the disadvantage of labor as well as to the industrial element as a whole.

A CHINESE REMEDY.

A Chinese diplomat is quoted as saying that there are two reasons why Bolshevism can never thrive in China. The first one is that the national religion, Confucianism, instills subordination to and respect for the older and wiser men. The other reason is that while there are peasants in China there are no big landlords because the peasants own their own farms and home lots.

There is substance for serious thought in this bit of Chinese reasoning just as there is in much of the philosophy of the oldest nation in the world, and while the published comments upon the matter in this country emphasize and elaborate upon the importance of home owning, which is good and proper, it should be observed that the Chinaman puts first that national religion of respect for and subordination to the older and wiser men.

There is need for serious thought on this subject too. We have been boasting that this is a country and an age of young men. It is right and proper to encourage the young, and we need the vigor and enthusiasm of youth, but youth may well look to the wisdom and guidance of that knowledge which comes with age, and profit thereby.

THE CERAMIC INDUSTRY IN NAGOYA, JAPAN.

Consul H. F. Hawley says that a published report of the Nagoya Gild of Earthenware and Porcelain Manufacturers and Dealers shows that the total product of the ceramic industry in that locality in 1918 included 45,252,240 toys; 1,696,960 household utensils; 217,210,750 pieces of tableware and 1,439,844 ornamental pieces. The total value of these is given as $5,639,560. The war served to curtail shipments somewhat during the latter part of the year but notwithstanding these handicaps a very encouraging export trade was done.

ADVERTISING COMMON BRICK.

The Need of Both Local and Nation Wide Publicity Campaigns. What Others are Doing—What the Common Brick Industry Can Do—The Necessity for Higher Prices.

THERE IS NO CALL for argument on the question of whether or not there should be more advertising of common brick. The industry as a unit seems fully agreed that there should be a more general and intensive exploitation of common brick. Questions of interest on which there is room for discussion are those of why common brick has not been more extensively advertised heretofore, and of how the individuals and the industry as a whole may proceed to advertise and exploit common brick most successfully. There are individual concerns, and here and there some small groups in given localities who have, during the past several years, done some good and effective work in local advertising and so there have been several efforts made at inaugurating and carrying out a campaign of nation-wide advertising. All of these have helped some, but none of them have attained in the past the support or accomplished the work that was hoped for. Today under the auspices of the Common Brick Manufacturers' Association of America, with headquarters in Chicago, a more pretentious effort is being made to develop a national advertising campaign than any which have gone before. The success of this effort will depend upon the interest aroused and the cooperation secured from the common brick manufacturers throughout the country.

Nation-wide Advertising.

It is right and proper that we should take note of other nation-wide campaigns of advertising that have been carried on, especially in building material lines, some of which come in direct competition with brick and all of which have to do with building, which is the main use to which common brick is put. Among the other building materials which have been conspicuous in nation-wide advertising one may name off-hand lumber, cement, steel, gypsum plaster, roofing, paints and varnishes. Also to this list may be added some other lines of clay products other than common brick, including such items as face brick and hollow tile. In fact, it is well enough known that most every other line of clay products has been more extensively advertised than common brick and yet common brick is more widely used than many of the other items which have been more extensively advertised.

The Question of Distribution.

We can find some explanation for this, and also some reasons why common brick has not been more extensively advertised in the past and it will be interesting to look into some of these reasons as they furnish light that will lead to better effort and wider exploitation in the future. First, however, let us examine some of the other building materials that have been widely advertised that we may get at the relation to and probable comparison with the situation in regard to brick. We must take into consideration in this connection that some items, like lumber, for example, while not so much more widely distributed than brick are distributed over a greater distance from any given plant or locality. In other words, the individual manufacturer gets the benefit of advertising over a wider range of territory than common brick manufacturers.

The distribution of common brick is in a great measure local and the wide distribution of the product is obtained largely through the fact that raw material for which is obtainable in every state in the Union and this makes easily practical such a wide distribution of manufacturing plants that there is seldom occasion for long distance shipment. Cement is effected to some extent in the same manner as brick, in that its weight makes long distance shipment add materially to the cost. But, at that, cement as a rule is shipped from a given plant over a much wider territory than common brick. This same thing is true of face brick, hollow tile and various other clay products, some of which weigh less comparatively and some of which command enough higher price to justify the greater shipping distance.

The Lumber Advertising.

A study of the advertising done by the lumber industry, which is most conspicuous in advertising of the building material industry, shows that there is really not a great deal of national advertising of lumber in the broad general sense. Various branches of the lumber industry carry on wide campaigns, advertising specifically their own kind of lumber. The most conspicuous of these is the Southern Pine Association, which does not advertise lumber as a whole, but yellow pine specifically. This is true also of the oak division and the cypress association, the walnut and various other divisions of the lumber industry. They carry on interesting campaigns both in specific trade papers and nation-wide, but these campaigns are localized so far as the kind of lumber itself is concerned. There is at present an effort being made to advertise lumber in its general sense instead of the specific items in lumber.

Lumber presents another interesting phase in the comparison of clay products in that primarily and all the time much of its advertising has been carried on through the lumber trade papers. This is to reach the retail lumber dealer, and the lumber consumer who buys lumber and further manufactures it. Then there is advertising in other trade papers of specific products, in the carpenter papers, architectural papers and engineering papers to interest the people who designate the building material to be used. There is advertising in trade papers which reach furniture manufacturers, box factories and other consumers. Then, finally comes advertising in farm papers and in papers of nation-wide circulation and popular character like the Saturday Evening Post, Delineator and various family papers.

Local Dealing in Lumber, Cement and Brick.

In this nation-wide advertising there has been considerable effort made to interest the retail dealers in lumber and get them to join hands with the manufacturers in this wider exploitation. It is there we find some interesting comparisons and studies of relationship between lumber and brick, both in the matter of advertising and in distribution. Lumber for structural purposes is mainly distributed through local retail lumber dealers who carry stock on their yards. These dealers are comparable in a way to brick manufacturers in that their business is local. It is even more localized in many instances than the distribution of common brick. Still, we can get a fair comparison here. Also we may bring cement into the study of this relationship since lumber and cement are important in the competition for structural favors and both are handled mainly through dealers. While on the other hand most of the brick product is sold direct from the manufacturer to the builder.

The Influence of Local Dealers.

Large quantities of cement are sold direct from the factory to the builder on large jobs like railway work, bridge construction, government jobs and so on. But most of the cement which enters home building and general construction for the everyday needs of humanity, like lumber, goes through the hands of the local dealer. Brick, on the other hand, as far as common brick is concerned, is mainly handled from the brick yard direct to the builder. Of late years there has been built up a dealer factor in the trade. This has developed more extensively in connection with face brick and hollow tile than in common brick, but there is gradually developing a connection between the brickmaker and the dealer in the distribution of the common brick product, which may grow and to some extent alter the situation a little.

Retail Lumber Advertising.

Now, so far, the lumber manufacturers have been unable to arouse any keen interest on the part of the retail dealers in the matter of nation-wide advertising. They have stimulated these dealers into doing considerably more local advertising. This has helped considerably in the sum total of advertising efforts, but so far the lumber manufacturers have been unable to get the lumber dealer in Indiana very much concerned over the matter of whether the lumber dealer in North Dakota has plenty of business or not. In other words, the dealer is ready to spend money advertising his own business, which means local effort, and direct returns, but he is not willing to put up money on the chances of helping create business for some other dealer in a distant locality.

Where Opinions Differ.

Let us keep this in mind now and turn back to the subject of advertising common brick. As stated in the outset, there is no difference of opinion whatever on the question of whether or not there should be more advertising and exploiting of common brick. All are agreed upon that. The difference of opinion arises when we come to the matter of how and where this advertising should be done. Here the situation reminds one of a discourse of that old Greek philosopher, Epictetus, on Praecognitions, where he says:

"This is the dispute among the Jews, the Assyrians, the Egyptians and the Romans; not whether holiness should be preferred to all things, and in all cases should be pursued, but whether it is holy to eat pig's flesh or not holy."

The differences and dissensions among the common brick manufacturers is not whether it is good and proper to advertise common brick, all are agreed upon that, but when it comes to where and how to advertise it, some want to do local advertising, and some nation-wide advertising. So the argument starts and continues to the detriment of advertising effort. Some argue that what we need is more local advertising; others argue that to centralize in national effort will bring good results, and at the same time will encourage and assist local effort and thus render greater benefit than can be secured by confining the work to local and disconnected effort. It is plain enough to the on-looker that what we need is both. We need more local advertising and we need nation-wide advertising with a centralized organization which can carry it on and at the same time render assistance in various ways to the members of the trade in their local advertising.

The Main Trouble.

One trouble with getting this proposition over is that the average brick man is likely to feel that he cannot afford to do justice to his local advertising campaign and at the same time contribute materially to a national effort. This brings us to the interesting question stated in the beginning, of why more advertising of common brick has not been done in the past, and why more money is not spent in this way at the present time.

The answer to this is that as a rule taking the country over the margin of net returns to the manufacturers of common brick has not been sufficient to furnish funds for extensive effort of this kind. Common brick has in the main been sold locally from the factory direct to the consumer at a price figured on a cost basis which did not take into consideration a liberal allowance for advertising and selling.

Many of you who attend the N. B. M. A. conventions regularly may recall a stirring address made some years ago at a Chicago meeting by an advertising man who told a story about the safety razor. The meat of this story was in his statement that there was only 35 cents worth of razor but it sold to the ultimate consumer at $5.00, and the difference between the $5.00 and the 35 cents worth of razor to start with went to pay for advertising distribution and profits. Quite a lot of it went into advertising that was nation-wide and cost a pile of money. The man's point was that the advertising sold the goods and made the razor so famous that $5.00 was readily obtained for it.

The Keynote.

If the common brick manufacturer could get any such comparative prices as that for his product he would then have room to set apart an advertising fund which would enable him to contribute liberally both to the local and national advertising campaigns.

The thought to get out of this and the thought which seems to sound the keynote for the solution of the question of advertising common brick is, if the common brick manufacturers will get a price for their product in keeping with prices charged for some of those other products that are widely advertised, there will be more inclination and more funds available for the kind of exploitation that is needed.

UNIONS AND AGITATORS.

During a recent car strike in one of our larger cities an open air meeting of union men was held at which several speakers of the agitator class made impassioned addresses. A preacher who had attended for his own enlightenment said among other things in a published letter afterward that what we need is more light and less heat.

In this instance the men were mainly from the agricultural districts and were noted for courtesy and kindliness. Through playing upon their emotions by spell binder agitators, they were converted into a more or less unruly mob. In other words, the mob spirit and mob domination had been put into them temporarily. This is the great trouble with practically all union efforts of workmen. They are the victims of bad advice and are stirred up by too much heated, impassioned oratory, and do not have enough broad gauged enlightenment. The result is a lot of undemocratic and un-American demonstrations on the part of organized labor while at the same time waving the flag and shouting about their patriotism.

What we need today is less flag waving and more real patriotism, less heat and more enlightenment. These are things that it is hard to get so long as the agitators run loose and are given free speech. Their work leads to strikes and strike breakers, both things of the undesirable class. When we have no strikes there will be no strike breakers, and we will have fewer agitators, there will come a better understanding between the men who work and the men who pay, and strikes will be the exception rather than the rule.

WHAT AILS THE COMMON BRICK BUSINESS?

THE ABOVE QUERY was put to the brickmakers of Eastern New York and Western New England in an interesting letter over the signatures of Wm. K. Hammond, George A. Parry, M. E. Gregory, and W. C. Tuttle, who called a meeting for the purpose of solving this problem and other similar troubles that beset the building brick industry, urging the importance of an exchange of opinion and experience and a mutual effort for the betterment of the industry.

The letter stated that there are not as many common brick being used as should be. This is quite evident to all who are connected with the industry and it was with an idea of comparing notes as to the best means of curing the trouble that a meeting was called for Wednesday, September 17th, at Hotel Ten Eyck, Albany, N. Y. Nearly half a hundred of the progressive brick men of that section responded and a busy and very pleasant day was enjoyed.

The first session was called at 10 A. M. and after the usual preliminaries or registrations, etc., his Honor, Mayor Watt addressed the delegates, extending the freedom of the city and welcoming the visitors in a most cordial manner, expressing the hope that the meetings would prove of decided benefit as he appreciated the fact that the brick industry was one of very great importance. F. E. Stillwell, of Syracuse, N. Y., who proved an admirable chairman, next introduced Mr. Beals, of New York City, who presented a very instructive paper on "The Common Brick Industry," which is given in full on another page of this issue and touches with much care, matters and details pertaining to the marketing of common brick. We commend his offering to our readers. It contains much food for reflection.

In the afternoon the meeting was addressed by D. Knickerbacker Boyd, a well-known architect of Philadelphia, who, both as an architect and as a member of the various war boards, connected with construction affairs, has been brought in close touch with the structural work during the war period. He urged that brickmakers agree on proper specifications for proper brick construciton and define in a specific way the grades of brick suited for building purposes, predicted that with intelligent effort, the demand for brick could be increased to a large extent.

Ralph P. Stoddard, Secretary of the Common Brick Manufacturers' Association of America, followed with an interesting address on the needs and benefits of co-operative effort in the brick industry and outlined the plans of the Common Brick Association for a publicity campaign that met the hearty approval of all present. Nearly all of the brickmakers in attendance were members of the Common Brick Association or agreed to become members.

Theo. A. Randall, Secretary of the National Brick Manufacturers' Association, was called on and responded briefly touching on the awakening of all leading industries as a result of the get-together work incident to the war. He commented on the need for team work among the common brick manufacturers and predicted that great benefit would result from the active and generous support of Secretary Stoddard and his associates in the effort to organize the common brick branch of the industry.

Wm. K. Hammond, of New York City, vice president of the N. B. M. A., made an interesting impromptu address, telling some of his early experiences in supplying government contracts which accentuated the importance of the establishment of standards which can only be accomplished by the united effort of the leading men in the trade.

Mr. George A. Parry, of Boston, spoke in a similar vein as did J. F. Reynolds, of New Haven, Conn., W. N. Carey, of Mechanicsville, N. Y., H. J. Jova, of Kingston, N. Y., and H. G. Whitmore, of Rochester, and others.

In response to a request for information in regard to market conditions, Secretary Reinhart called the representatives of each section to state the prevailing price of brick either at the kiln or delivered. The replies indicated that the prices varied in different localities, ranging from $13.50 to $16.00 per thousand at the kiln. The price delivered on the job ranged from $15.00 to $18.50 per thousand depending on length of haul, etc.

Secretary Reinhart presented each delegate with a camouflage badge of white cardboard with the corners trimmed off to represent a brick. It was both a simple and novel decoration and bore the name of the delegate.

OBITUARY.

Death of Charles M. Crook.

The many friends in the brick industry of Charles M. Crook, for many years a leading figure among Ohio paving brick manufacturers, will learn with regret and sorrow of his death which occurred on September 18, at his home in Mission, Tex., where he has resided for the past few years. He was laid to rest at Youngstown, Ohio, his old home, September 24. A number of his former business associates and a large concourse of his old time neighbors and friends attended the funeral services. Mr. Crook was elected president of the National Brick Manufacturers' Association in 1911, and was active in its affairs and in the work of the National Paving Brick Manufacturers' Association for a decade or more. He also was the executive head of the latter organization. He was a man of charming personality. To know him was to love him. He retired from active business several years since owing to ill health. His widow and three children survive.

The Late Charles M. Crook.

BUILDING OPERATIONS RESUMED AT CHICAGO.

After two months of stagnation incident to the strike of the carpenters, building operations have been resumed in Chicago, the strike being declared off Saturday, the 20th. The demand of the carpenters for a dollar an hour was granted.

Eventually there will come a realization of the fact that what we know as the industrial strike is a crime, and the sooner it comes the better it will be for all concerned.

A NEW COMPENSATED HEATMETER.

By Charles P. Frey, Chief Engineer The Brown Instrument Company, Philadelphia, Penna.

UNTIL COMPARATIVELY RECENTLY, the determination of furnace and kiln temperatures by means of thermo-couples was attended with complications and difficulties which made practical men impatient, and in some instances doubtful in regard to the intrinsic value and reliability of the method. Technical men, however, have realized from the beginning that, within certain temperature limitations, the results obtained by the use of thermo-couples were not only accurate, but could be made "direct reading," provided that the thermo-couple be connected with a galvanometer which would indicate the actual value of the e. m. f. obtained by heating.

On first consideration, this problem did not seem difficult of solution, since it is an established fact that the e. m. f. or voltage of a thermo-couple bears a direct relation to the difference in temperature between its hot and cold ends. It is also true that the movable coil of a millivoltmeter will be deflected to an extent which is directly proportional to the e. m. f. of the thermo-couple. Therefore, it would seem the simplest operation imaginable to connect the thremo-couple and the instrument together by means of insulated conductors, figure the scale in temperature values, and regard the problem as solved.

Unfortunately, however, we have also to contend with factors which cannot be ignored if accurate results are required; namely, line resistance, thermo-couple resistance, and the resistance of the indicator itself; because, to be precise, a direct current millivoltmeter actually is not a millivoltmeter at all, except in name, but is a milliammeter or current indicator. All instruments of the d'Arsonval type depend primarily upon current for their operation, and the extent of the deflection obtained with any given current is established by the intensity of the magnetic field, the controlling force of the springs, and the number of convolutions or ampere turns in the movable coil, and not by a remote e. m. f. Therefore, if the conductors which carry the current from the source of e. m. f. to the terminals of the instrument do not have a negligible resistance, then, in accordance with Ohms' law, there will be an appreciable fall of potential along the line, with the result that the movable system will receive a diminished current, and therefore be low in its readings. To reduce such errors to a minimum, it is desirable that the instrument resistance be as high as possible, so that the line and thermo-couple resistance may be proportionately insignificant. For instance, when this is not the case: Fig. 1. If the resistance of the millivoltmeter (M) is 300 ohms, and the resistance of the line (A) and thermo-couple (C) is 3 ohms, the current through the circuit will be reduced practically 3 parts in 300, or 1%, and the instrument indications will be 1% low. Figured in degrees Fahrenheit, this would mean an error of approximately 14° in 1400° Fahr., if a thermo-couple were used.

The advantage of high resistance instruments, therefore, becomes evident. For instance, if the pyrometer has a resistance of 600 instead of 300 ohms, and the line resistance remains the same, an error of 3 parts in 600 will result, or only ½ of 1% instead of 1%, or, about 7° Fahr. in 1400° Fahr.

Until within the last five years it was customary to use a so-called low resistance pyrometer to measure the current from the thremo-couple. These instruments had from two to five ohms internal resistance and were naturally materially affected by the external resistance of the thermo-couple and leads. In the past few years high resistance pyrometers have been almost universally adopted. These instruments have an internal resistance of usually from 300 to 1200 ohms. The higher the resistance, naturally the less the effect on the readings due to variations in line resistance. But with increase in internal resistance, something had to be sacrificed, and usually control or torque is weakened. In consequence, the instrument is not as substantial or dead beat, and, due to the use of lighter springs is more apt to be affected by spring fatigue.

It has been found by trial that an instrument of medium resistance (about 300 ohms) can be produced in a satisfactory and substantial form, but an instrument of this class is necessarily affected in its indications when leads of considerable length are employed. Material variations in the length of thermo-couples are also a source of error, as well as the introduction of compensating leads. When compensating leads are employed, as well as long wires, in connecting the thermo-couple with the instrument, it is a common practice to reduce the resistance of the instrument in order to offset the effects of line resistance. This is at best a method of doubtful value, since it interferes with checking the scale by comparison with a standard, and does not compensate for changes in the resistance of the line or thermo-couple, due to variations in temperature.

The Brown Compensated Heatmeter.

Various devices and attachments have been made for use in connection with indicating and recording millivoltmeters and pyrometers, by means of which the instruments will remain direct reading, and at the same time be compensated for external or line resistance. Inventions of this class range all the way from a simple step rheostat connected in series with the "dead" resistor of the instrument; to the elaborate and complicated apparatus employing the substitution and deflection methods; the potential of the thermo-couple being first balanced against another potential derived from a dry cell; and after an intermediate operation and an intercomparison of deflections, the effect of line resistance is finally balanced out by means of a rheostat, and direct deflections are obtained from the thermo-couple current. +1

It remained for two Physicists +2 of the Bureau of Standards, Washington, to offer an invention of theirs, which, incorporated in a Brown Pyrometer, eliminates the effect of line and thermo-couple resistance by means of an operation which is so simple that anybody can use the instrument and obtain accurate results.

This improved Heatmeter will unquestionably appeal to the practical man who wants results and does not care especially how the instrument functions provided its indications can be relied upon.

In testing with this apparatus all that is necessary is to connect the thermo-couple with the instrument binding posts in the usual manner, press a button, turn a knob, and take a reading, which will be the correct e. m. f. of the thermocouple at its hot end, even if the line is miles in length. In fact, the line may have as much as 15 ohms resistance.

For those who would like to understand the fundamental principle of the Harrison Foote Invention, and at the same time prefer a simple demonstration, the following explanation should be of interest; especially since it reduces the method to its most elemental form, by substituting an ammeter in place of a pyrometer, and using cells instead of a thermocouple.

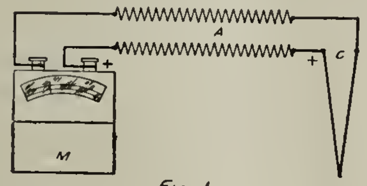


Fig 1

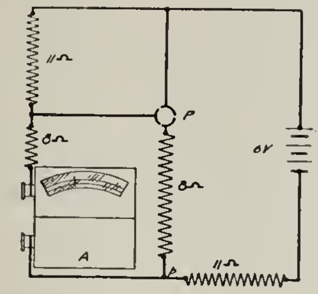


Fig 2

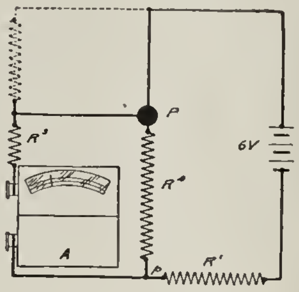


Fig 3

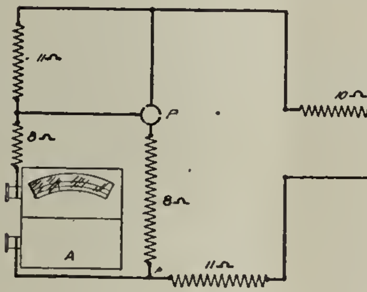


Fig 4.

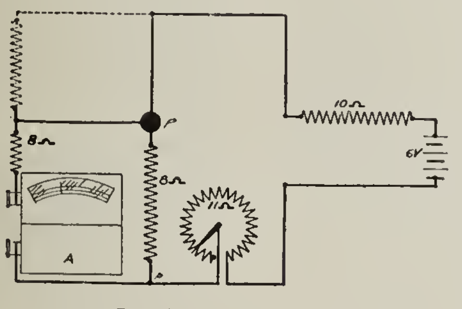


Fig 5.

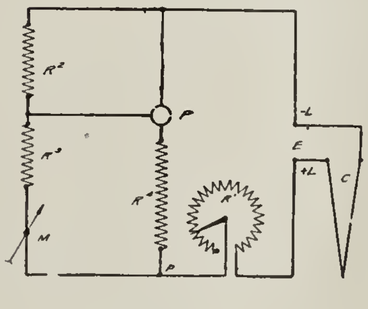


Fig 6.

If A (Fig. 2) is an ammeter of negligible resistance, in series with three resistors of 11.8 and 11 ohms, respectively, and an e. m. f. of 6 volts is impressed by a battery, also of negligible resistance, it is evident that the resistance in circuit will be

$$11 + 8 + 11 = 30 \text{ ohms, and by Ohms' law } (C=\frac{E}{R})$$

the current throughout the circuit will be 6/30=0.2 ampere, and the ammeter will indicate accordingly.

If now (Fig. 3) a plug is inserted in P, the resistor R2 will be short circuited. By the same operation, the resistor R4, which also has a resistance of 8 ohms, will shunt or "by-pass" the ammeter, thereby robbing it of part of its current. In other words, the current splits when it reaches the plug, part of it going through R3 and the ammeter, and the remainder through R4, re-uniting at P and passing through R1, back to the battery.

The total current in this case will, of course, depend upon the total resistance in circuit. Since R2 is cut out the resistance will be

R1 = 11 ohms, + R3 and R4 in parallel.

By the law of divided circuits, the resistance of R3 and R4 will be their product divided by their sum, or

$$\frac{8 \times 8}{8 + 8} = 4 \text{ ohms.}$$

The total resistance being 15 ohms and the current being

$$\frac{6}{15} = 0.4 \text{ ampere, twice the current flowing in fig. 2.}$$

But it is obvious that, since R3 and R4 are alike in resistance, the current in splitting at P will divide evenly, half of it passing through the ammeter. Therefore the ammeter will indicate only one half of the total current or 0.2 ampere, the same as in fig. 2. Hence, under these conditions the deflection of the ammeter will not be changed whether the plug is in or out. If, however, 10 ohms of line resistance is added to the circuit (see fig. 4) the current with plug out will be

$$\frac{6}{11+8+11+10} = 0.15 \text{ ampere.}$$

With plug in R2 is cut out as before, and the total resistance will be

$$10+11+\frac{8 \times 8}{8+8} = 25 \text{ ohms and the current will be}$$

$$\frac{6}{25} = 0.24 \text{ ampere}$$

Of this current, one-half or 0.12 ampere will pass through the ammeter. Its deflection will hence be less than in fig. 2,

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+1 (Foot Note) The Brown Precision Heatmeter.

+2 (Foot Note) Paul D. Foote and T. R. Harrison.

when the plug is inserted, and the ammeter pointer will move down scale. To remedy this, let R1 be in the form of a rheostat (fig. 5). Then if the resistance of this rheostat is reduced an amount equivalent to the 10 ohms of line resistance, the conditions prevailing in figs. 2 and 3 will be re-established, the line resistance will be compensated for, and the pointer will again indicate 0.2 ampere, with plug in or out; all of which is very simple and self evident after it has been demonstrated and explained.

In the actual construction of the instrument for technical and practical use, the movable system consists of a highly sensitive copper or aluminum wire coil suitably mounted in an intense magnetic field. In place of the plug P, a three-way press button is used. The shunt R4 need not, of course, have a resistance equal to that of R3, in fact, it is preferable to so proportion it that the current through the circuit as a whole may be increased eight to ten times. The deviation of the pointer from normal will hence be large for even a very slight change in line resistance, permitting easy adjustment.

In practice the rheostat R1 has a resistance of 15 ohms, subdivided into steps of approximately .05 ohm, so that the position of the pointer may be regulated with absolute exactness. In this connection, it is in order to call attention to the fact that, while it is, of course, desirable to know what the range of the rheostat is, it is not at all necessary to know or attempt to determine what the line resistance may be. The rheostat is normally set at zero, and in testing for line resistance, is given a clockwise motion. In an experimental model the following proportions were adopted with excellent results. (See fig. 6.)

Total resistance for 40 millivolts, 290 ohms.
Current without plug, .000138-ampere.
Current with plug, .00106-ampere.
Resistance of shunt, 26.25 ohms.
Movable system, 53.3 ohms, copper wire coil.
Rheostat, 15 ohms.

The temperature co-efficient of the instrument was +.000365° Fahr. It is, of course, possible to construct these Heatmeters with much higher resistances to meet special requirements, but excessively high values in ohms per millivolt are not factors of first importance in this type of pyrometer.

As already stated the shunt R4 need not have a resistance equal to that of R3, which is proven by the appended demonstration in which the following notations are employed:

R1 = Maximum or "zero" position of rheostat.
R2 = Resistance of ballast coil.
R3 = Resistance of Swamping coil and movable system in series.
R4 = Resistance of Shunt.
RL = Line Resistance.
Rt = Sum of line resistance and resistance of rheostat when it is in any given position.
I = Current flowing through movable system.
E = e. m. f. of thermo-couple at any given temperature.

In adjusting the instrument circuits at our laboratory, the resistors are so proportioned that

$$\frac{R1}{R2}=\frac{R4}{R3}$$

The scale is graduated so that the instrument will give correct readings when:

$$Rt = R1$$

Assuming the instrument to be connected as in fig. 6, and with plug out, then:

$$I=\frac{E}{R3+R2+Rt}$$

When the plug is in, the total current becomes:

$$\frac{E}{\dfrac{R3 \times R4}{R3+R4}+Rt}$$

Since the resistance of a divided circuit (the swamping coil and movable system in shunt with R4) is the product of the individual resistances divided by their sum, this current will proportion itself in the two arms of the divided circuit in inverse ratio to their resistances. Therefore:

$$I=\frac{R4}{R3+R4}\cdot\frac{E}{\dfrac{R3+R4}{R3 \times R4}+Rt}$$

Or, simplifying,

$$I=\frac{R4\,E}{R3 \times R4+R3 \times Rt+Rt \times R4}=\frac{E}{R3+\dfrac{R3}{R4}\times Rt+Rt}$$

The rheostat is adjusted so that this current equals the current obtained with plug out. Then:

$$\frac{E}{R3+\dfrac{R3}{R4}\times Rt+Rt}=\frac{E}{R3+R2+Rt}$$

$$\text{Therefore: }\frac{R3}{R4}\times Rt=R2 \quad\text{or,}\quad Rt=\frac{R2 \times R4}{R3}=R1$$

Since Rt now equals R1, the instrument will give correct readings.

It is in order to add that, while an experimental model has been referred to for data, the development of these instruments has long since passed the experimental stage, and, in practical form, the improved Brown Heatmeters, incorporating the Harrison Foote method, have all of the following advantages:

They are direct reading throughout their entire scale range.

They require no dry cells or standard cells.

They are independent of line or thermo-couple resistance.

They have a negligible temperature co-efficient.

The operation of these instruments is simplicity itself. It cannot be questioned but that such an instrument is a radical improvement on any of the various forms of electric Pyrometers heretofore available and represents another noteworthy advance in Pyrometry.

$1,000 FOR A WORD.

The World Trade Club, of which Wm. E. Hague is secretary, 681 Market street, San Francisco, Cal., is offering $1,000 to the person who suggests the word which in the judgment of the Club's Metric Campaign Committee is best adapted to world-wide use and will cover in its meaning the United States and all parts of Great Britain.

This is one means for keeping before the public the idea of our adopting the metric system of weights and measures which though widely urged has not found much popular favor in this country.

Another idea is to bring into closer relation all the English speaking people of the world.

The $1,000 prize for whatever word may be offered that best meets the approval of the committee is to be paid May 15, 1920.

Written for The Clay-Worker.

CINCINNATI BRICK AND BUILDING NEWS.

THERE IS A GREAT AMOUNT of figuring being done here on construction work, but the actual work being undertaken is far less than it should be, considering the great scarcity of residence property. This is indeed a very serious condition, and the lack of homes is becoming a most important matter for the residents. There has been a fair share of construction work done and more will be done later, but the high cost agitation has been holding in check much work that would otherwise be started.

The clay men are fairly active, but not nearly so much so as they wish to be. There has been a demand to be sure, but this is not nearly as large as the season would ordinarily demand, and the needs of the public would make possible. There has been some complaint with regard to the difficulty in obtaining stock and the manufacturers are having their troubles too, in the way of labor and car shortage. So the situation does not offer as pleasing an outlook as it might.

The following statement with regard to building operations here for the past several years, including the report for the month of August for three years and the first eight months. The permits for 1917 were, 1,086; 1918, 936; 1919, 1,253. The improvements cost for 1917, $926,795; 1918, $323,410; 1919, $1,208,485. The first eight months for the several years were: Permits, 1917, 8,869; 1918, 7,012; 1919, 8,051. Improvements, 1917, $8,374,820; 1918, $3,775,523; 1919, $6,346,160.

James I. Stephenson, president of the Cincinnati Iron and Steel Co., has purchased a home in Hyde Park and a tract of land adjoining and will open a new and exclusive residential section to be known as Boulder Park. Some homes are to be built on this ground on lots with not less than 100 feet frontage, and about 500 feet deep. They will face a private driveway.

The new theater to be built by Asher Bros. at the northeast corner of Seventh and Vine streets will be started soon. The present buildings are being torn down and the contract for the new building has been awarded to the Ohio Building and Construction Co. Plans for the new theater have been completed by Architect Henry L. Newhouse of Chicago, and the building will be completed within six months it is hoped. It will be one of the most modern structures of its kind in the city and will seat 3,000. It will cost about $500,000.

Alfred A. Anderson will build a home to cost about $20,000 in the Arcadia subdivision, off Linwood road.

The City Ice Delivery Co., is to build several additional structures to cost about $150,000. The plans are in the hands of Archtitect Bernard T. Wisenall and the general contract has been awarded to Jacob Weber, for the improvements at Station 28. A building will be erected at Walnut Hills, also at Covington, Ky. Other improvements are to be made in various localities and the facilities of the plant greatly aided.

The Werk Soap Co. is to build a two-story addition to its plant at St. Bernard. The plans have been made by Major Bert Balidwin, architect. It will be 60 by 100 feet.

Samuel Hannaford and Sons have completed plans for a two-story brick dwelling for Dr. F. J. Boyd on Derby avenue.

W. Bakker has purchased ground for the construction of a two and one-half-story dwelling on Dana avenue. He is a general contractor.

Werner and Adkins, architects, have completed plans for the building of a new home for the Journal, at Middletown, O., to cost $60,000. It will be two stories and fireproof, 40 by 160 feet.

The same architects have plans for the building of a home for Dr. Barton, of the same city, to cost $20,000.

Miss Marie Baer will build a bungalow costing $10,000 on Grandvista avenue. The Cincinnati Real Estate and Building Co. has the contract.

The Herald Square Building Co. will erect a six-room bungalow at St. Lawrence and Rosemont avenues. It will cost about $6,000.

The trustees of the Miami University at Oxford, O., will build a dormitory for women to cost $40,000 and a dormitory for boys to cost $300,000. The latter is a bequest of Mrs. Laura Ogden Whaling, of Cincinnati.

A day nursery will be built by the St. Xavier parish at 607 Sycamore street to cost $30,000. It will be three stories.

E. J. Harth will build a six-story loft building at 314 West Fourth street to cost $50,000.

Kruckenmeyer and Strong, architects, have about completed plans for the building of an entirely new plant for the E. H. Bardes Range and Foundry Co., Camp Washington. The plant will be built in sections, the first part will be the foundry which will be one story, 100 feet square.

Plans are being prepared by Jos. G. Steinkamp and Bro. for a new agency house for the Cunningham-Holmes Co., on Gilbert avenue. It will be two stories high of brick and concrete, with about 11,000 square feet.

Howard McClorey, architect, has completed plans for a one-story and basement warehouse for the Haehnle Provision Co., Covington, 25 by 100 feet, and for a six-room brick bungalow for Joseph Happenjans, on Wallace avenue, and a four-room brick dwelling on Russell street, both of Covington, Ky.

Carl Walters of Los Angeles, Cal., has become manager of the brick and clay department of the Moore-Coney Co. Business here has been fair.

Plans are being made by a group of local capitalists, headed by John M. Stoner, of the Cincinnati Clay Products and Manufacturing Co., to build a plant for the manufacture of shale brick. The brick will be machine-made wire-cut brick. A request has been made of the Civic and Industrial Department of the Chamber of Commerce for surveys of property containing from 100 to 150 acres of land in close proximity to a railroad and in the vicinity where clay can be had for the operation of the plant.

The Cincinnati Clay Products and Manufacturing Co. will very soon be located in its new home on Main between Fifth and Sixth streets. The first floor display room will not be completed, however, for some weeks and with its opening there will be a novel display idea inaugurated. The demand for brick here has been very fair, but the difficulty has been to obtain stock as rapidly as has been needed.

The Builders' Material Co. note that there has been a good deal of planning, but no great amount of business in recent weeks. The high cost and difficulty of getting material have been drawbacks.

The office of the Purcell Brick Co. is about in shape now with its new idea in finish and arrangement. The effect will be very pleasing. Business here is fair, but not more than this now.

The Cincinnati Clay Co. say that there has been difficulty in shipping and labor shortage, too. Business has been only moderate and the situation generally not as good as it should be.

S. S. and G. H. Godley, architects, have prepared plans for the construction of a group of apartment buildings to be known as Hamilton Court, at Rockdale and Burnet avenues. There will be 18 buildings containing 102 apartments.

The D. C. Shorey Brick Co. has been able to obtain a number of nice orders for large contracts of late. These include 300,000 shoretex rustique oriental brick for the Standard Oil Co. plant on Spring Grove avenue, 250,000 of the same kind of brick for the Lafayette Hotel, Lexington, Ky., 60,000 shoretex face brick for Harrison County, Ky., public school, Crittenden, Ky., 70,000 brick for the Globe-Wernicke Co. plant, Norwood, and 250,000 shoretex brick for a Camp Washington, O., job.

The Black Diamond Manufacturing Co. will build a three-story brick and concrete factory at 1209-11 Bank street. The cost will be about $27,000.

The Richardson-Taylor Printing Co. will build a warehouse to cost about $80,000 on Buck street of brick and concrete.

The Corcoran-Victor Co. will build a two-story addition to its main plant on Danridge street. The plans have been prepared by Garber and Woodward, architects. It will be 50 by 92 feet. —CINCY.

Written for THE CLAY-WORKER.

PHILADELPHIA BRICKLAYERS STRIKE.

UPWARD OF TWO THOUSAND building operations in this city are tied up because of the strike of the bricklayers. The operations include both industrial and dwelling places and all minor work necessitating brick.

The strike has developed into a fight to the finish affair between the bricklayers and the building operators. The bricklayers are standing firm on their demand for an increase in wages of $3 per day.

In May of 1918 the Bricklayers' Union signed an agreement to work until May, 1920, for 87½ cents per hour. They are now out on strike demanding $1.25 an hour.

The building contractors have accepted hundreds of contracts for operations, figuring on the cost of brick work at 87½ cents per hour; it would, therefore, not be very profitable to grant the increase of $3 per day asked by the bricklayers. Employers of the bricklayers are determined not to accept any compromise nor concede a single point on account of the violation of the agreement. The builders declare that when the bricklayers refused to work they destroyed every hope of gaining their demands. At a meeting of the Master Bricklayers' Association it was decided to fight the journeymen bricklayers to the end, it being charged that the bricklayers walked out without notifying them and without the sanction of the Bricklayers' Union.

The matter of resuming certain emergency work came up for discussion at this meeting. At the Ployclinic Hospital one of the two boilers is torn down and the other in a dangerous condition. A letter from the superintendent of the institution was read. In it he declared that loss of life might result through work on the boiler's brick foundation being delayed.

Thousands of school children are forced to attend half sessions of school (to their joy) because the work on twelve school buildings has been delayed.

Eight of these schools were undergoing extensive repairs which necessitated the tearing down of a majority of the class rooms; the other four operations which were undertaken in the spring and have about been completed but are nevertheless of no use to house hundreds of children.

Prominent brickmakers at the meeting of the Master Bricklayers' Association promised to lend their support and refuse to sell bricks to contractors who were paying their men more than 87½ cents per hour.

COAL IN 1918.

The U. S. Geological Survey Report on coal production in 1918 shows total shipments of 589,016,224 net tons. There was sold to the local trade and used by employes at the mines 21,356,196 tons; there was used at the mines for steam and heat 22,745,395 tons; made into coke, 45,094,089 tons, which made a grand total of 678,211,904 tons valued at $1,828,423,196. This made the average price of $2.70 per ton at the mine. There was employed 762,426 people and they worked 258 days. This made a record year both in the tonnage produced and in the number of employes and the days worked.

New Plant for Established Ohio Brick Concern.

A good index of the revival of building operations throughout the country is the fact that Ohio face brick manufacturers are loaded with orders and are shipping as fast as they can get cars. Some are sold ahead for months and have called in their salesmen. Among the latter is the Alliance Brick Co., Alliance, Ohio, makers of the popular "Alliance Ruffs." Mr. F. A. Hoiles, the president and manager, is a hustler, active in many business enterprises, a man who bets on Uncle Sam and has abundant faith in the future of brick as a building material and in the continued demand for the Alliance style of brick facing. He has been obliged to withdraw quotations until he can catch up with his orders. But he is not waiting for something to happen; he is building another plant that is to be the last thing in face brick manufacture, that will produce a high grade brick so economically that it can be run profitably when others are losing money. The Richardson Producer-Gas-Fired Continuous Kiln was decided upon after thorough investigation and its construction is now well under way.

CHAOS AND LEADERSHIP.

That the sentiment of the people in this country of ours has been in a somewhat chaotic condition since the close of the war is not only well enough known to everybody, but it has been a matter of serious concern to many of those who take to heart the welfare and progress of the nation. One of our good friends so concerned writes us that he thinks our country and the world as a whole needs a change of heart which will turn the antagonism arising from the many conflicting ideas coming from the chaotic condition of human sentiment to a more harmonious co-operation for the general good of humanity. The thought going with this expressed desire is that the most important requirement of the day is leadership.

Fortunately for our own country it is in developing leadership that we shine. There has never yet arisen an occasion calling for guidance and leadership but what this leadership has soon been forthcoming and has made itself felt. This is true both of political and of industrial affairs and it is one of the things which cheers us when depression appears.

There are in this great country of ours more thinking people than in any other country in the world. This naturally makes for its share of entangling differences and opinions, but down at the bottom of those who think, and of those who are moved by emotions and the rantings of spell-binders there is a measure of good common sense which is the great saving grace of the country, and eventually leads to a proper following when the right leadership appears.

We have an abiding faith both in the people as a whole and the development of native leadership whenever it is seriously needed.

PINCHING THE SURVEY.

The order of the Public Buildings Commission in Washington by which the space available for the scientific, technical and clerical staff of the U. S. Geological Survey is reduced about one-half has very naturally raised a protest from the members of the scientific and technical staff which should be backed by the business men of the country. The U. S. Geological Survey has been of great service to industrial development not only during the war but prior to the war and instead of being pinched it should be given every encouragement for larger and wider development.

THE COMMON BRICK INDUSTRY.

The Demand for New Construction Totaling Four and a Half Billion Dollars Requires Capacity Production.

THE PLEASURE that I have in being privileged to participate in this important conference, fraught as it is with such momentous and long enduring possibilities, is marred by only one thing: my complete inability to present here to you the facts I have prepared for the occasion in anything like the oratory or the eloquence they so sadly need. I come here, not as an orator, nor as a prophet (nor even as a propheteer), I am only a business man, accustomed even as you are to analyze the problems of the day and attempting to apply them to the exigencies of the present times and to the eventualities that must sooner or later be evolved out of the perplexities, turmoil and discouragements of the hour. I have brought with me only the fundamentals of business economics as they exist today, as I view them. I present them here, not as a formula, not as a panacea, not as a nostrum guaranteed to cure the ailments of your particular business, but rather as a reflection of certain basic factors that are infiltrating into the life of the brick industry at this very hour which supports the optimism I have for the future of the common building brick industry. I present them to you as one would present a portrayal of basic business conditions as found upon impartial examination to actually exist and lay them, before you to view them with calm and searching eye to the end that you may shape your own conclusions and see, if in the final analysis, you too, cannot find that there is actually room for increasing confidence in the future of the business. The gloomiest hour is that before the dawn and the dawn of clearing days is at hand which I will speak of more particularly later.

At the very outset may I digress from my set speech a moment to say that I am this morning more convinced than ever that the fading of the year 1919 will mark the passing of the ten-year cycle of gloom and discouragement, of trial and misunderstanding that has hovered over you as an industry since the boom times of 1909. I hope to reveal the basis of this view more minutely forthwith.

We meet today upon the outer edge of a triangle consuming annually, in normal times, approximately 2½ billion common brick, if New Jersey is included in the classification. This same district this year will consume barely more than 800,000,000, of which New York City will consume barely 400 million. It is the leanest year for consumption of clay products the industry has ever known. It marks the zero hour in the trade—the point from which the pendulum must begin to swing upward. Indeed, I believe it has started.

We face strange causes of discouragement as we wonder what the forthcoming year has in store for us. They are unfamiliar causes. There is a warped condition of monetary exchange, factors in the cost of living, various causes of social arrest, greater emigration than immigration, labor disturbances, general hesitancy in construction work, lack of workmen, native and foreign, strange, visionary forms of legislation being proposed that disturbs building investors everywhere and causes them to halt rather than meet the condition of national under-supply of homes and business housing amounting to 46 per cent. of normal. There are factors of tight bank credits and higher costs of raw materials that alone would be problems enough for the perplexed common brick producer, even though he were highly organized as an industry and had the mighty helpful benefits of association of ideas, experiences and applied policies.

Is it any wonder that the imagination of business men in general and of brick manufacturers in particular is stagnated and tottering? Is it any cause for wonderment that common brick manufacturers everywhere are crying aloud for some means for lifting their vision over this barrier against creative thought so as to give them at least a sense of the approach of the clearing days.

I have profound aversion against the word "boom." I speak not in any language of the agitator or the gifted seer when I speak of the dawn of the clearing days. I predict no "boom." I herald no millenium. But I am convinced that the clearing days are here. I know that you have already passed the deepest part of the valley of despond.

To one whose niche is near the center of the building industry, who almost daily feels the pulse of finance and material supply that alters city skylines and makes more prosperous the small suburban town, the opportunity is given to view, not with periscope, but with the conservative spy glass, the newer and better things that are in store. We merely need a directing hand, a guiding finger, to draw our vision to these changes that have come to pass in recent days to realize that a stealthy change is creeping in, the forerunner of a building era almost beyond the power of the human mind to gauge.

Tremendous changes in standards of wages, standards of costs, standards of conducting business, aye, even standards of construction, face you brick manufacturers today. You cannot catch up with the onward march of progress unless you start when and where the other industries essay the forward step. Times will not permit the weakling to be dragged along, nor will it await the tardy co-operation of the sluggish giant company imagining that the industry's progress depends upon the sanction of the leaders of other days. The crumbs that drop along the way will make but meagre fare for straggling industries.

The Inadequate Supply of Building Materials.

Have you given thought to what this future is in size? The biggest building year the country ever had, developed about $1,500,000,000 worth of building construction. The greatest volume of building materials (and there are 3,000 items of material and equipment that can enter into a modern building, for each of which there are at least ten manufacturing centers) totaled about $2,000,000,000. That was when all the building material plants for all kinds of material in all parts of the country were able to operate on an average of 80 per cent. of capacity. Today, with these same plants unable to operate at more than 40 per cent. of capacity, the country will turn out barely $900,000,000 worth of building materials to go into immediate consumption. **While the potential building construction program of the entire country today reaches toward $4,500,000,000 worth of building.**

Ponder, for a moment, what such a stupendous figure means in the construction program for the immediate future. Consider, also, that about one-fifth of all this total of prospective construction work is called for right in this triangle which is represented here by you today. Then remember that in all of New York City, as an example, there is barely as much work in progress as there was when the country was at war and the government had a complete ban on all nonessential construction work.

We were wont to point with pride that we emerged from the world war with our country in better condition than it was when it emerged from the civil war. We were then a debtor nation. Today we are a creditor nation, but we are fast becoming disillusioned from the belief that was current during the earlier part of the year that the distinction was a glorious one. The scenes of more recent days have given us another insight into what this privilege of being the world's creditor nation means to us. It seemed a jolly thing to pile up supply for foreign needs, but when it meant long credits it meant also inflated exchange and then attempts, and with considerable success, alas, to unload the stored-up goods that Europe finally did not buy, upon domestic markets, not at lower prices, but at prices that a rashly spending public could be made to pay. We forgot that New Zealand, Australia and Canada have resources to supply to their mother country that which was in storage here in hopes of a world corner on living commodities.

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*Address by Allen E. Beals, of the Allen E. Beals Corporation, publishers of the Dow Service Daily Building Reports of New York, before the New York and New England Brick Manufacturers, Hotel Ten Eyck, Albany, N. Y., September 17, 1919.

Perhaps you wonder how this affected building. It first disturbed the savings funds and they, in turn, affected the great lending institutions. Whoever had funds laid aside for building when the war should end, found costs would shrink either the size or the richness of the building in contemplation. To Wall street, then to increase, if possible, the nest egg to meet the higher cost of building. The million and two million share days on the Exchange tell the story. Some of those building funds will never see the light of day in the purchase of building materials—but that is the risk the lambs always take. Then building waned. Strikes came. Contractors in increasing numbers actually refused to make bids on estimates because they had no cost basis upon which to work. Lack of demand always has its reflex upon production and here is the sequel to what I have just revealed.

Difficulties of the Lumber Trades.

When building waned the lumber schooners that used to bring lumber from the south and north were withdrawn. One man in New York representing forty-four lumber mills had thirty-six permanently shut down because: (1) The government has gone through the forests picking select material and leaving only unmarketable stumpage; (2) Supply was too far from the mill to profitably permit taking out timber and tightened bank credits at a time when bank accommodation was most needed to save the industry were withheld or proffered under conditions unsafe for business to follow in times of such national uncertainty. I was reliably informed by a man who knows his subject, only last night, that the president of the National Lumberman's organization said that the lumber supply of the south today was sufficient to last only ten years.

And while I am on this subject of lumber, permit me to state this fact:

Right here is one of the greatest opportunities for organized propaganda for the common brick industry of this section of the country in particular. All during your business careers you have been face to face with the statement that a frame house costs less than a brick one and you have been unable, perhaps, at all times to refute it (although it has always been possible to show that brick construction was cheaper in the long run). Now then, if lumber is becoming scarce, it must, of necessity, be becoming more expensive. Canadian spruce lath, delivered in New York City today costs $9 a thousand. The normal price is somewhere around $1.25. It is a long way to transport lumber by raft from the state of Washington to New York, then saw it and sell it in competition with Hudson or Connecticut or Massachusetts brick dug from the clay banks in nearby neighborhoods, employs neighborhood labor and lasts forever. It has been shown that the cost of a brick house of given size will today be no greater than will a frame house and when you stop to think that the great demand everywhere today is for stabilization of wages, $8 a day, with the exception of the bricklayer who, in New York, wants $10 on the ground that his occupation is seasonable, "dependent upon the weather," your product will have the advantage, in that it has more to offer for a given price to the home builder. **But you will not gain anything unless you let the building public know these things,** by word of mouth, by citation and example, **but especially by the liberal use of the printed propaganda.**

But to go back to the subject of material supply and how it has been affected by this timidity of the populace to proceed to build. Lack of building turned the lumber carrying bottoms into the trans-Atlantic food carrying trade to Belgium and other countries. The barges that hauled crude plaster from Canada were retained by the government in large number making haulage to this market heavy in cost.

The railroads were first clogged, hindering movement of raw materials, and when they were cleared there came car shortages that kept the dealers from a full supply. You know the story of the fleets of brick barges that once near filled the Hudson's traffic lanes. The bags that once were used for packing cement went into other trades and barrels too, found use for other lines. The glass that went into windows and store fronts in tremendous plates, became windshields for autos and rear peek plates for even ordinary cars at twice the price the building trades were wont to pay. Crushed stone, sand and cement and gravel went into roads instead of homes and business places and factories while common brick assumed the role, in spots of peace-time ammunition for sympathizers for warring unions, seeking shorter hours and higher pay.

A Million Homes Needed.

The actual present-day requirements of this country are a million homes, about 128,000 factories costing $100,000 or over; about 325 factories costing less than that; more than 6,000 hotels, nearly 5,000 schools and public institutions; 55,000 apartments, 120 major freight terminals; 14,000 railroad and freight sheds and nearly 20,000 theaters and churches. Only about 40 per cent. of this total is under way at this time of which the district represented by this conference shows the lowest proportion.

One reason for the poor showing made in this part of the country is that the middle west and the coast have been alive to several things. Chief among these is the fact that the armistice is signed, that sooner or later peace will formally be declared that it is useless to wait for building materials to decline before authorizing architects to proceed with plans to build.

Comparisons are always odious. If there is anything an easterner detests is to be told that just because the west is doing a certain thing, he should go and do likewise. It is undeniable that conditions heretofore have been different here than in the west. Conditions of brick distribution in this part of the country have been essentially peculiar to our own needs. You have been satisfied to stand pat and you have.

There is, however, a new condition which has to be faced today. It starts with the shrunken value of the dollar and it ends with standards of business, not as it exists today, but as it will exist when industrial peace has been restored and the true element of demand and supply once more becomes operative. In other words, common brick, the most basic of all building materials, that which is still first thought of when perfection in fireproofing and 100 per cent. safe construction is considered stands unsponsored and unsung in what presently will be the richest building construction market of all time.

Building Costs Low By Comparison.

Here is another splendid key or catch phrase for your industry—that the dollar will today purchase more in building construction than it will in any other commodity. This is revealed by comparison with other commodities like clothing, grains, dairy produce, etc., all of which have advanced 116 per cent. while building construction costs have advanced only between 60 and 100 per cent. You brick manufacturers representing the most basic of all basic building materials have, by your close adhesion to cost, partly through government request and partly through your efforts to bring about a stabilization of building material prices in New York and vicinity, helped mightily in keeping the cost of building materials 23 per cent. below the list of other commodities.

The shrunken value of the present dollar suggests caution which is in danger of lapping over into parsimony, but the times demand commercial vision that reaches over into a business era whose scope and magnitude will far surpass anything the world has ever known; and one-fifth of it will be right at your very doors. Let us see what this means:

We have said that the country's present need is a million homes. That is correct, as of last March. Six months have elapsed and 300,000 more homes are needed now than were needed then. Half of these homes have been made necessary by marriages. The remainder is chargeable to speculative building enterprises, replacement by fire, wind and flood.

To be exact, every normal year, this country required 600,000 new homes or places of abode. This includes apartments and hotels. It is apparent that with a back-log made up of such a factor alone, running over two or more years of war and rumors of war and another year, for it is now almost a year since the armistice was signed—during which there was almost general hesitancy and inactivity in building construction, many years will elapse before there can be even the semblance of a dearth of building work. The consequent demand for common brick will be increasingly great as the scarcity of lumber becomes more acute, greater uses for other building materials finding their origin in the pit, the quarry or the clay mine are found, all necessitating higher standards.

Will Common Brick Get Its Share?

It is a mooted question as to whether common brick will get its share of this great demand. Certainly it is not placing itself in the position to reap the greatest benefits from the boom times that are nearly here. Can you—any of you—think of a single basic or any other commodity in building material classification or out of it that has not been popularized in the public advertising pages? The suspenders you wear, eggs—what is more common than eggs, yet there is a nationally advertised egg that is more costly than the other eggs on the market, but it has the call. You who say a common brick is common brick as long as it is hard might apply the same logic to saying that a hen's egg is a hen's egg as long as it is fresh. Sausages, oysters, clothes pins and gasoline, all common place commodities of general and special uses, are heralded broadcast. What is more common or more barren of advertising feature than gasoline? But you find that gasoline is being made the subject of most profound propaganda even to the extent of the use of full pages in daily newspapers. Everybody uses the telephone, but it is an advertised commodity. Hollow tile, plaster block and cement are being advertised because they had back of them a liberal campaign for propaganda when the market was healthy, almost full capacity of plants were engaged day in and day out. The farsighted policy of these industries, associated for the common interest of all, is what is unquestionably carrying on the lines that are competing with your product now and yet common brick is the essence of 100 per cent. safe construction. One-fifth of that vast potential building movement is to come out of the triangle of New York, New Jersey and the New England States within the next few years. Will you get your proportion of the fifth that is offered? Not unless you awaken to the popularity that publicity has won for your competing materials.

I believe that I am close enough to the financial and contracting side of the consuming markets today to say that from this day to one some years hence, it will not be a question with the prospective builder as to whether the price of building materials will go down, but rather, "will the cost of assembling building materials in the building remain steady enough to permit me to start and finish my projected building operation?"

I believe also that the price of building materials has not yet reached its peak. The top of the building material price peak will be reached when the new wage scales have been adjusted according to the schedules that must first be worked out between employer and labor over the whole country, but the demand for housing and business buildings, still will not check building of a necessary character.

How to Stop Strikes and Lockouts.

I attended a conference here at the state capitol building yesterday called by Governor Smith to determine how to stop strikes and lockouts. I know of efforts in New York among building trades employers and their employes to reach a condition of wage stabilization. I have here a referendum sent out by the central office of the building trades unions in New York seeking to ascertain how far they will go toward the stabilization of wages. I remind you of the President's efforts to bring about a reduction of the cost of living so that wages may speedily be adjusted at a permanent base. These things all point the way toward better things. I am convinced that the day has arrived when sober heads will have once more the sway in council, not only of labor union, but in the councils of the employer and in the councils of the man or men who contemplate construction work.

I venture also to express the belief here that before you, as manufacturers, will be able to meet the full requirements of the abnormally great building demand that the next decade will usher in, you will have to fix upon some new method of paying the men in your employ. The first essential for you to consider in supplying such a stampeding market is to make sure that you will have an uninterrupted flow of brick into your market. I am aware even now of great big building contracts that are being estimated upon in New York and efforts have been made to take over entire outputs of brick plants in this section of the country to insure a steady flow of brick to the job but that the manufacturer will not make such a deal because he cannot tell what his prices next year will be and the buyer is not prepared to accept an upset price under such conditions. When conditions such as these accumulate, and I can tell you that there is significance in the fact that from J. Pierpont Morgan's office at Broad and Wall street to Anne street in Nassau street, New York City, vast blocks have been sold and attempts have been made even before the wrecker has removed the first brick on the old structure, to buy materials into the fall of 1920 and the spring of 1921 to insure a speedy completion of his structure: is it not indeed the part of shrewd, hard-headed and practical business men to pause to think how very necessary it will be to have even the crude laborer in your yard your friend?

It may be in the form of some sort of wage and piecework basis for your manufacturing staff, or profit sharing in some way, either by bonus or prize, to encourage greater production, but whatever the method you employ you are face to face with the necessity of employing some method (not that of driving the men to hunger)—I say, whatever way you employ, it will be decidedly to your advantage to have this man your friend. Strikes will be prohibitive for you. The propaganda other commodities have been carrying on already have reached a menacing point for your welfare in the mind of an architect. Take care he does not more and more crowd your commodity into the realm of a specialty in building material, rather than a basic building commodity. It is the dream of the competing material. But you have not been on the defensive.

A Most Promising Outlook.

There is a reason for this more tolerant attitude. I should like to present it to you for your full consideration. I was invited to come here today to bring to you a few germs of optimism. I am not quite sure that the foregoing and what is to immediately follow will come properly within the classification of sowing seeds of hopefulness. To my mind there are so many **facts of optimism** in the industrial crystal into which we are peering that we cannot damage the whole perspective if we, for a moment, stand face to face with a slight blur on an otherwise roseate horizon.

Ten million men died in the great war. Do you realize that this loss alone creates a void in the process of propagation of life that cannot be filled for years? There are two ways of curing it, nationally. One is by condoning polygamy, as is being done by European governments. The other is by introducing foreign labor. There can be no hurrying the march of time by employing the former method. There is no surplus of labor in any European country. So there is no immediate hope for curing this condition from the angle of national policy.

The Orient is the only place where there is a surplus of labor. There is a suggestion to bring in that labor to work our yards, our trenches and our great engineering works. This is not the cure, however, to our present problems. I was born and raised in San Francisco and I can well recall the "sand lot" campaigns against coolie labor. If you bring in Oriental labor to help you out of your present problem, you will be sure to undo all the good work that nation, state and community have performed to make labor friendly. You will have strikes innumerable against firms or commodities employing Chinese labor just as there were boycotts in San Francisco thirty-five years ago against anything made by the hand of an Oriental or sold by any one hiring or catering in any way to the Oriental.

The solution of your problem is to make your employe happy, whether he be the rolling stone or the permanent bulwark of your manufacturing establishment. He must and will have the new economics of building material manufacture that will be forced upon you within the next few months, a little bit more than a living wage, so that he too, may have some of the comforts of life. It is reaching the point where it is un-American for the employer to deny his employe sufficient to have in his home, not only an ample table, comfortable and durable clothes for himself and children, but his phonograph, his player piano and, if he is very thrifty, his motorcycle or auto, or else, be in a position to own his own home. Then he will be happy and, writing home, will win back, not only the man who is leaving our shores by the thousands every week, but that man's sons, cousins, brothers and uncles. Then will the conditions making for easy strikes, sure victory for strikers and general unrest be cured, not within eighteen years, through the methods of polygamy, but through the now almost forgotten days of industrial peace. In the next eighteen years there can be no surplus of labor in this country, no matter how many uncles, cousins, sons and brothers are departing Luigi brings back with him.

It is, or should be, your purpose to approach this matter, not when you are face to face with conditions of supply, but before the stampede begins. It will be too late then. Investigate a little in the cement industry and see what the attitude of the manufacturer there is, in this regard. Fix a wage scale for your men, not at the present market, but one that will be sufficient to make him happy and your friend, then you will cure the labor shortage problem.

Suggestions for Trade Betterment.

You are captains of a great industry. You, like other great leaders have perhaps had your imaginations taxed to picture the fullness of the turning of the times. I wonder if you have ever thought in weighing some of the causes for retardedness in your industry that perhaps the very name **common brick** is in handicap. Hollow tile, reinforced concrete and names comparatively new and have been so completely popularized that the name **common brick** seems to me to express backwardness and unprogressiveness down through the ages even into Pharoah. If you were to offer a prize large enough to attract general public interest (1) For a good practical substitute for the present name **common brick**: (2) Offer a prize for the person who can give the best and largest list of uses for common brick; (3) Another prize for the person who can suggest artistic uses for common brick. With an adequate propaganda carried in the magazines and periodicals carrying the largest popular subscriptions, I am very sure that yours may be the experience of other great industries which have established or regained national prestige. The article which we now know as **common brick** is worthy of a better designation, one that will strike the aesthetic architect's ear with a more pleasing sound. Help him to know that architectural effects may be worked out of what we now call common brick quite as beautiful as that which can be obtained by the use of front brick.

Gentlemen, there is much more to this thing of being ready for the big era of building than appears at such short range. You are all hoping for the big, the vast things, but are you really helping yourselves. I view the present as the great turning point in your industry.

I have only touched upon the surface of suggestion. As I said at the opening of this conference, I am convinced that unless something is done quickly to prepare yourselves for what is coming—and it is coming as quickly as it is possible for nation, state, community and, above all, business sagacity, to create it; you are going to find your vast industry removed from the classification of a basic commodity to one of a specialty. It is more than a menace. It is a threat. A threat against the life of the one commodity in building that stands for the highest perfection in fireproofing and in safe, weatherproof building construction, the one commodity that has the unique distinction of having the **test of time behind it**; a commodity that is not an experiment—no, not by 5,000 years of time.

There are more factors operating in favor of a quick and general revival of the building industry than has ever before been known. It is not the part of practical business men to stand aside and wait. You will have to, you must at once form yourselves into a solid mass of co-operation and oneness of purpose to instill that confidence into the hesitating builder that will at once bring him into the market for **your** product. The right, the sane, the timely thing to do is to stand up like American business men of red blood and fire and set a visionary barrage over the no man's land of doubt and momentary discouragement and, selecting your objective, charge for it, reach it and retain it for it is yours to have and to hold.

SOME BENEFITS OF TILE UNDERDRAINAGE

A benefit which comes to the well drained soil is the circulation of air through it. When the water which fills the spaces in the soil passes out, the air follows, filling up the spaces. Air is as necessary to the healthy growth of our crops as it is for our animal natures. Farmers have had many lessons in proof of the truth of this statement. For instance, during a long continued rainy season, corn and other plants on undrained soil becomes yellow; the water filling the spaces in the soil excludes the air so necessary to the growth and well being of the plant. In addition, the air in its circulation through the soil has a highly important chemical effect upon the fertilizing parts of the soil, making them available food for the roots of our crops. By no other process is the air made to enter the soil so freely and deeply as by underdrainage, and the deep cultivation which is made so easy on account of its open, friable condition.

Another benefit resulting to the soil and the growth of crops is, the added fertility which comes from the water of rainfall. The water in its passage through the air takes up carbonic acid, ammonia, and nitric acid and gives them to the soil in its passage through it. These fertilizing matters are of much importance in the supply of plant food. Otherwise the water flowing over the surface of the soil, not well underdrained, would carry these elements away into the streams, together with the light vegetable matter, and thus serve to impoverish the land.

In the application of barnyard manures, the open, porous character of a well-drained soil serves to carry the liquid portion down into it. Each recurring rainfall washes the manures, and the washings, instead of being carried away with the flood, are passed down into the soil, the water flowing from the mouth of the drain clear as crystal. In the surface washing of land there is another serious loss—the fertilizing elements brought to the surface in the capillary action of the soil are also carried away. The extent of this loss we cannot estimate.

A further benefit of good underdrainage is the increased area for the roots of plants to penetrate in search of food. Every observing farmer knows that a deep soil is much better than a shallow soil. In the larger portion of this State we may have a soil as deep as we underdrain—four feet deep, if we dig for it, when we lay our drains. Few of us realize how deep the roots of crops go down into the earth, when the mechanical conditions of the top soil and subsoil will admit of it. We have found wheat roots at a depth of four and one-half feet in a well-drained soil, and corn roots have been known to penetrate to the depth of seven feet. The roots of crops on lands not drained will keep near the surface and avoid having wet feet, but suffer woefully from drouths when they come.

By underdraining we draw a draft on the farm underneath our farm, and it is paid promptly in full.

IDIOSYNCRASIES OF BUILDING MATERIALS—Brick.

OF ALL the manufactured building materials, none enjoys a lineage more ancient than brick. Composed of the earth itself, no material has so well served its purpose through remote ages down to the present day.

Its influence on architectural design has been very great, and its power of artistic expression in the hands of the architect is large. Throughout the major part of Europe, good brick making clay could always be had in abundance, and as good building stone is so often scarce the use of brick and its influence on building design became extensive. This influence extended to America in the Colonial days, when brick was imported from Europe for the dwellings of the wealthy settler in the new world. In ancient and mediaeval times, brick, then of but one type, was often faced with a veneer of cut stone or plastered with stucco. During recent years the development of brick with a variety of surface textures and colors has greatly broadened the power of expression obtainable by its use and such added facings no longer become an artistic necessity.

During the past decade, great progress has been made in brick manufacture. In order economically to produce large quantities, plants greatly increased in size have been erected, and many of the smaller plants discontinued. Where these smaller plants formerly turned out but 25,000 brick per day, the larger ones now produce 350,000. By using improved methods of manufacture, the bricks are only twice handled during the entire process of manufacture. In the successful making of brick, considerable skill and knowledge are necessary. Such complexities as securing a proper mixture, sometimes quite difficult due to the varying strata of the clay bank; the proper grinding and screening to secure the desired texture in the finished product; correct burning in the kiln, and others, call for the skill made possible only by long experience. Care of handling to prevent disfigurement and the regulation of the drying process, requiring scientific temperature control, are other factors of importance. Here improper regulation may cause a high percentage of loss in the output.

A trip through a modern brick plant will soon force the impression that both skill and painstaking labor are required to make good modern brick, although the simple process of manufacture used during its early history was then considered adequate.

The principal ingredients of brick are clay and protoxide of iron. The presence of protoxide of iron causes the reddish color after burning, this color varying in shade, according to the proportion in which this ingredient is present. Other foreign materials may have beneficial or detrimental effects. The most common of these are:

'Carbonate of lime, which in any large quantity renders the clay unfit for brick making.

Sand or silica, which should not exist in any excessive quantity, as it renders the brick too brittle and destroys cohesion in the clay.

Magnesia, or a small percentage of lime, which will change the reddish color produced by the iron into a cream or buff shade and in small quantities is not detrimental to the clay.

In the mottled or Pompeian brick, the mottled effect is produced by coloring matter in the clay or by mixing clays of different chemical compositions.

In the process of manufacture, three grades of common brick are produced: Arch brick, which, being nearest the fire, are very often hard burned; red brick, which are usually well burned, and salmon or pale brick, located furthest from the fire, are usually soft and underburned.

While no standard size has yet been adopted, that recommended by the American Society for Testing Materials is 2¼ in. x 3⅞ in. x 8 in. Western brick usually run larger than this.

Hard brick should not absorb more than ten per cent. by weight of water, should have a crushing strength of not less than 3,500 lbs. per square inch and a modulus of rupture of at least 600; medium brick should not absorb more than 18 per cent. of water, have a crushing strength of not less than 2,000 lbs. per square inch and a modulus or rupture of at least 450. Brick below this latter standard should be classified as soft, and should never be permitted in the exposed face of exterior walls.

To destroy the output of soft brick would be wasteful, but to allow its use in locations where it is manifestly unsuited would be still more wasteful and in addition harmful. There is a place for the soft brick and if used in a wall it belongs in the interior. It should never be placed where exposed to the weather or in any section carrying a heavy load. Piers and sections of walls under girders should be built entirely of hard or medium burned brick.

Attention is directed to the fact that a pale brick is not necessarily a soft brick. The light color may result from the chemical ingredients in the clay. This can be easily determined by striking two bricks together. If soft, the resultant sound will be a thud, whereas, if well burned, a clear ring will be emitted.

A brick giving a pleasing appearance is the water struck brick, previously manufactured to a large extent in New England and yet made in a limited way. However, there is now on the market a rough textured brick, which is considered by many just as beautiful. By its use a wider range of color shade is obtainable, and it can be turned out in much larger quantities.

Brick, through a long line of descendants, has become at once the most democratic and the most aristocratic of building materials. One thing yet needed to place the brick building industry on a higher plane is not more bricklayers, but more craftsmen in brick, who can see in their work something above dollars and cents. Attempts have been made to establish schools of bricklaying, and these have proved both successful and helpful in many cities. To increase these ideas, and maintain them free from the influence of trade unions, will mark a desirable step in advance in the art of brick building.

From its lowly birth, brick proceeded through the centuries until the days of the Renaissance, when its highest perfection as a building material was reached. The modern architect has a wider range of types, a larger selection of colors and of textures, yet it is doubtful if he will ever excel in the perfection of the use of brick as a method of artistic expression the Italian and French buildings which stand today as the highest exposition of brickwork.—The American Architect.

Mark up that date now called fire prevention day, October 9, and enlist for the work of spreading the doctrine. If you need literature and advice, write the National Board of Fire Underwriters, 76 Williams Street, New York.

CLAYWORKERS AT THE FIFTH NATIONAL EXPOSITION CHEMICAL INDUSTRIES, CHICAGO.

SOME FIFTY or more members of the American Ceramic Society gathered at Chicago, Wednesday, September 24, to view the wonders of the great chemical exposition which filled the Coliseum and overflowed into the adjoining First Regiment Armory. Unfortunately a combination of causes prevented the officers from attending, President Stull, Secretary Binns, Professor Bleininger and other headliners being conspicuous by their absence. Nevertheless a series of interesting sessions were held, patriarch orator, W. D. Gates, was drafted and served as chairman of the various meetings, C. W. Parmelee, Secretary of the Illinois State Association of Clayworkers, acting as secretary. These two worthies did excellent team work and under their direction there was no lagging of interest at any stage of the game. The success of the meeting was due largely to the efforts of C. H. Kerr, Chairman of the Committee on Co-operation.

Secretary Binns wrote explaining the reasons for his inability to be present, expressing regrets and submitting a paper touching on the past, present and future of the A. C. S. He said in part:

"The American Ceramic Society was founded in 1899, at Columbus, Ohio, when a small group of scientific men, interested in the problems of the silicate industries, gathered together and formed a permanent organization. Beginning with the report of that meeting a volume of transactions has been published each year for nineteen years. In addition to the annual volume, a Manual of Ceramic Calculations, as an appendix to Volume II, and the works of Herman A. Seger, translated from German, were published.

"Clays and glazes were the earliest interests of the society but were soon followed by all branches of the silicate industries.

"The growth in membership was steady but not large until about 1917, when conservatism yielded before a vigorous campaign under the Membership Committee, resulting in an increase of over 200, a movement which has continued up to the present when there are 1,156 members.

"In 1918 the annual volume of transactions was superseded by the Journal of the American Ceramic Society, with G. H. Brown as editor. There has been a gratifying improvement in this journal during the year and three-quarters if its existence, and it now ranks with the scientific journals of much larger societies.

"Local sections have been organized in places where there are many ceramists, who meet frequently for the discussion of papers and for good-fellowship. More recently Industrial Divisions have been formed for the better grouping of interests at the annual meeting. It is probable that hereafter there will be one or two general meetings and the rest of the time will be given over to divisional meetings.

"The futuret holds much promise for the society and for the industry it represents. Conservation of fuel will be studied, the labor problem met, electrical energy utilized to the utmost, and the ceramist will seize the materials provided by the bountiful earth and will make them his servants."

Dr. E. W. Washburn gave an interesting talk on "Some Aspects of Scientific Research in Relation to the Glass Industry."

Ross C. Purdy presented a paper on the subect, "Superior Refractories," in which he told of the development of high grade refractories which will be known to the trade as superior refractories. His paper provoked considerable discussion which was lead by Lemon Parker of the Parker-Russell Mining and Manufacturing Co., of St. Louis, Mo., and an ex-president of the N. B. M. A.

The morning session was held in an almost inaccessible room on the third or fourth floor of the Armory, nevertheless the attendance was good. At noon they adjourned to meet after lunch in a parlor of the New Southern Hotel which was headquarters and where a lantern was supplied with which to illsutrate the various lectures.

One of the most interesting of these was on the marketing of pottery by F. H. Rhead of Zanesville, Ohio, who had nearly fifty slides showing the various types of pottery of both ancient and modern production.

The manufacture of glass was the most generally discussed theme but brick and tile came up for consideration, Douglas F. Stevens of Cayuga, Ind., speaking in his usual felicitous way on the necessity for more technical knowledge in brick manufacture and urging the cordial co-operation of the American Ceramic Society in conjunction with National Brick Manufacutrers' Association for further experimental and research work through the Committee on Technical Investigation, operating under the direction of Professor Bleininger.

Dinner was served at 6 o'clock with W. D. Gates as the factotum. He announced in advance that there would be no speeches and lived up to the promise. The evening was spent at the Exposition where a series of moving pictures were shown, illustrating in a graphic way the process of manufacturing various products requiring high temperatures, after which the members found both pleasure and information in viewing the exhibits throughout the Exposition, among which were many of particular interest to clayworkers.

Interesting Exhibits.

Ceramic chemicals, minerals and oxides were on display in the booth of the Roessler & Hasslacher Chemical Co. They make a specialty of materials used in the production of pottery, glass, enamel ware, terra cotta, tiles and other clay clay products. Interesting booklets will be supplied to any desiring same, on request, address 100 William St., New York, N. Y., P. O. Box 1999.

A most interesting exhibit to novices in the industry and the general public as well, was that of the Maurice A. Knight Acid Proof Chemical Stoneware. The odd shapes and intricate forms into which this ware is produced, make it very attractive as an exhibiting material.

An equally interesting display was that of the B. Mifflin Hood Brick Co., Atlanta, Ga., where chemical brick and Hood's Spiral Rings with other pottery products were shown. The spiral ring is essentially a war product, having been supplied to the government in vast quantities under rush orders. Mifflin Hood surely deserves a medal of honor for the splendid services rendered the government during the war.

The Denver Fire Clay Co., Denver, Colo., had an attractive display of special forms of fire brick and other refractory materials which they offer the trade. Their genial representative handed out an attractive little brochure entitled "What's in a Name?" which explains that, as the firm name implies, they not only manufacture fire brick but other refractory supplies as well. A copy can be had for the asking.

The Philadelphia Drying Machinery Company had an interesting display and presented visitors with attractitve literature showing their "Hurricane" stove room for drying pottery, etc., which was well illustrated in the August Clay-Worker. This dryer is especially adapted for the production of china ware, spark plugs, sanitary porcelain, electrical porcelain, saggers, glass pots, hollow ware and face or fire brick. See ad on the back cover of this issue.

The Thwing Instrument Company showed a line of the latest improved Thwing Pyrometers. Mr. Thwing himself was on duty and extended the glad hand to all comers.

The new Brown Precision Heatmeter, illustrated on another page of this issue, was shown and attracted much attention. Mr. Keller was in charge of the display.

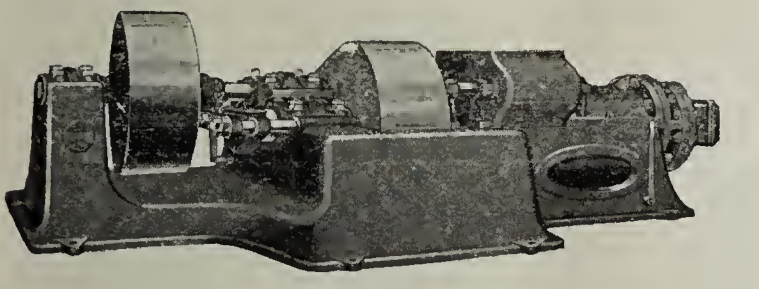
The exposition as a whole was a decided success, the great Coliseum being thronged with visitors from noon to midnight.

INTERNATIONAL CLAY MACHINERY CO. EXPANDS.

A CONSTANTLY growing business and demand for larger production in the clay machinery and industrial car field, has been met by a recent merger of the International Clay Machinery Co., of Dayton O., and a large Cincinnati Corporation.

This is of special interest to the clayworking field in that it adds greatly to the production facilities of the company and will, therefore, mean quicker deliveries on equipment to the clay products manufacturer. A large number of new machines have been added and several more have been ordered and will shortly be in operation. In fact, one of the new machines is the largest of its kind now being used anywhere in the Miami Valley, and was especially required for the handling of International's new line of auger machines.

This line of new auger machines which was recently announced in the advertising pages of this journal, is shown in the accompanying cut. The design as can be readily seen, is advanced throughout, the entire machine frame being cast into one piece including the outboard bearing. The machines are all single geared with the gears running in oil. These machines were designed to meet the growing demand for simplified, rigid, low power-consuming machinery. Other machines of new desing will soon be placed at the disposal of the clayworker.



The International New Auger Machine.

The new company is also engaged in the manufacture of sugar machinery, in which line it has an extensive foreign trade.

A new catalogue has just been printed and is ready for the trade, covering industrial cars, turntables, trackage, etc., in which field International has a large business.

The merged companies are capitalized at nearly $1,000,000. Mr. R. H. McElroy, who is well known to the industry through years of association with the manufacture of clayworking machinery, is Vice President and General Manager, while Mr. E. J. Anderle is his assistant in the clayworking and industrial car department.

MEETING OF COMMON AND FACE BRICK MANUFACTURERS AT INDIANAPOLIS, OCT. 14.

A CALL HAS BEEN ISSUED for the regular quarterly meeting of the Indiana division of the face and common brick manufacturers to be held at the Claypool Hotel, Indianapolis, 10 A. M., Tuesday, October 14th. In addition to the usual routine of business the meeting will be addressed by Ralph P. Stoddard, secretary of the Common Brick Manufacturers' Association of America, who will present the plans of that organization for the up-building of the comon brick industry throughout the land. Visiting brickmakers will be cordially welcome whether they are members of either the local or national association. A large attendance is anticipated.

JOSEPH L. BUCKLEY ESTABLISHES THE CERAMIC EQUIPMENT COMPANY AT TRENTON, N. J.

A NEW COMPANY has been organized under the firm name of the Ceramic Equipment Company, with plant and general office at Trenton, N. J. Mr. Joseph L. Buckley, recently with the Philadelphia Drying Machinery Company, will be general manager, having severed his connection with the latter firm. The new company will make a specialty of an improved dryer designed by Mr. Buckley and especially adapted to high grade pottery. They will also make and supply equipment for all ceramic plants. Mr. Buckley has had many years experience in equipping and operating all manner of clay plants from brick and tile to pottery, porcelains, etc. Further announcement will be made as soon as the new firm gets fully under way. In the meantime, Mr. Buckley will be very glad to hear from his frineds in the trade who may contemplate any improvement in plant equipment. He will locate permanently in Trenton.

DEPARTMENT OF CERAMIC ENGINEERING ILLINOIS UNIVERSITY.

George Edward Sladek has been appointed Research Graduate Assistant in Ceramic Engineering. Graduated from the University of Illinois in 1917 with the degree of Bachelor of Science in Ceramic Engineering; and during the past year has been doing graduate work in ceramics and chemistry at the University of Illinois.

James Chetwin has been appointed as Laboratory Assistant and Potter in the Department of Ceramic Engineering at the Illinois State University, Urbana. He attended the Sutherland Institute for Pottery in England; has had 18 years' experience in several potteries in England and America; was foreman of the Iroquois China Company, Solvay, New York, for a year and a half; and for the past year has been engaged as a decorator.

ENGINEERING SERVICE BULLETIN.

The Ceramic Supply & Construction Co., of Columbus, O., has issued Bulletin No. 1 entitled "Engineering Service." This is the first of a series of bulletins that are to be issued representing their business. Others to follow soon cover the subjects of "Screens," "Producer Gas and Gas Producers," "Automatic Feeders," Continuous Kilns," "Testing and Controlling Apparatus," "Dryers and Dryer Equipment," "Elevators and Conveyors," "Mine and Factory Supplies."

These bulletins will constitute their method of soliciting work, for the Ceramic Supply & Construction Co. is sending the Bulletin to all who ask for it and those they think will be interested in it. So this and their advertising in the trade journals will constitute their solicitation for business.

NEW FURNACE BULLETIN.

The Celite Products Company, 11 Broadway, New York, is issuing a new and interesting bulletin describing in detail, standard engineering practices of insulating various types of furnaces; such as, annealing, heating, forging, malleable, gun, glass, etc. Copies of this bulletin B-8-A will be mailed on request to anyone interested in this subject.

CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Embryo Brickmaker Makes a Good Start.

Editor The Clay-Worker:

I am figuring on installing a large brick and tile plant in eastern Virginia, and naturally want to get as much data on the subject as possible, so would ask you to enter my subscription to the Clay-Worker and send bill.

Yours truly,
East Lynn, W. Va. S. W. PERRY.

Old Plant to be Remodeled.

Editor The Clay-Worker:

You will find enclosed our check for $2.00, covering subscription to The Clay-Worker.

We have recently taken over the drain tile plant of E. G. Blaser at this place and are going to thoroughly remodel and modernize it, making brick, drain tile and fire proofing. New machinery, new kilns and new drying tunnels will be installed. Work to start at once.

Yours very truly,
WYANDOT CLAY PRODUCTS CO.,
Upper Sandusky, O. By Robert L. Hare.

In Market for Heating Elements for Gas and Electric Purposes

Editor The Clay-Worker:

I am in the market for a quantity of heating elements for gas and electrical purposes, and would be pleased if you would give me a list of names of companies who are leaders in the manufacture of this kind of goods. The main thing to be considered is material which will withstand a high temperature without breaking. Also that can be heated to a high degree of incandescency efficiently.

Thanking you for an early reply, I am,

Yours very truly,
Brooklyn, N. Y. D. E. LEIKEL.

Wants to Know Standard Size of Brick.

Editor The Clay-Worker:

Enclosed find check for $2.00 to cover subscription to The Clay-Worker for twelve months, ending Sept., 1920.

Business is good and we are running to full capacity. It looks now as though the car shortage was going to hamper shipping to some extent and at a time when material is needed very much to finish up jobs that are started and to get others out of the way before cold weather.

Some time ago there was quite a little talk in regard to a standard size being adopted for face and common brick. Will you kindly advise me if any definite action was taken, and if so, what sizes were adopted, and if no action, give me the accepted standard for common and face brick, especially the latter, in the plastic brick.

We make no common brick, but have brick in our territory that are smaller in size than the brick we are making, and would like to get a line on the adopted standard.

Thanking you for the information, I am,

Yours very truly,
St. Elmo, Ill. E. M. DURLAND.

[The standard size for common and face brick is 8x2¼x3¾ inches. This size was adopted by the American Face Brick Association and concurred in by the National Brick Manufacturers' Association in 1918.—Editor.]

William Conway and Daughter Take a Trip in a Flying Machine.

Dear Teddy:

I am still here at Atlantic City, hoping to escape my usual affliction of hay fever, and it looks as if I would miss the plague this season for the first time for a number of years. My daughter, Florence, is with me, and together we made a little trip in a flying machine the other day, and really enjoyed it. Enclose a snap-shot, taken just before we went up. We both of us agreed that it was the safe plan to have the picture taken while we were all intact. Sometimes they are a little scattered after they come down. We enjoyed the experience.

There is nothing much new in the brick line, our plant is running along as near to capacity as the labor situation will permit. Will, Junior, is looking after things while I am away, and believe me, it keeps him busy. One never knows what is going to happen around the plant from one day to the next. Otherwise, we are all right.

Wm. Conway and Daughter Enjoy Aeroplane Flight.

Building operations have been hindered in Philadelphia lately by a strike of the union bricklayers. The non-union jobs are still going, and it would seem as if there are nearly as many non-union as union bricklayers.

Wish you were here to take a stroll with me on the Board Walk.

Yours truly,
WILLIAM CONWAY.
Atlantic City, September 13.

Opportunity to Ship Brick to England.

Editor The Clay-Worker:

I beg to acknowledge receipt of your kind favor of the 21st inst., and the receipt of the copies of your paper which safely arrived this morning, which I will take back with me to London by the "Saxonia" on the 30th inst.

This company has secured the agency for Great Britain and her colonies of the Crow Elkhart automobiles, and it appears to me that there is a very large trade to be done in England in American bricks, if they can be delivered cheaper, and able to compete with English ruling prices.

We would be glad, therefore, to have any offerings direct to our London house, 17 College Hill, as I think shipments could be made at low freight rates if small sailing craft could be chartered of four or five hundred tonnage.

Appreciating your courtesy and with compliments, I remain,

Yours very truly,
I. S. McCANN,
Managing Director, Brazilian Commerce and Industries.

Pennsylvania Brick Man Will Make Improvements in Plant.

My Dear Randall—Enclosed find check covering subscription for year ending July, 1920.

You ask how business is in this section of the country; beg to advise that there is plenty of business; in fact, I have more orders on the books than I can take care of, the greatest trouble I have is due to the scarcity of labor to manufacture my product. I have been short of labor all the year, and at this writing the conditions are worse than at any other time. We are paying $4.56 per day for common labor, and even at this exorbitant price it is impossible to run with a full complement of men.

I intend to make extensive improvements by the addition of a new power plant, will install one new 150 horsepower boiler and a 75-ft. brick stack. I am in hopes to start on this work the latter part of September, and have it completed before cold weather.

The building situation, everything considered, in Western Pennsylvania is good, even at the high cost of labor and material, there is considerable being done in the way of factories and residences, but, as stated before, the great trouble is the production. I do not think there will be an immediate change in conditions.

Trusting you are well, and with kindest personal regards, believe me, I remain,

Yours very truly,
Corry, Pa. D. WARREN DeROSAY.

Immense Brick Plant Under Way.

Editor The Clay-Worker:

Please enter my subscription to The Clay-Worker. I am building a sewer pipe plant at Thurber, Texas, for the Texas & Pacific Coal & Oil Company, which we plan to make the largest clay product plant in the Southwest, representing an investment of approximately $750,000. The plant will turn out salt-glazed sewer pipe of all sizes, segment blocks, wall coping, drain tile and flue lining, made from high grade Texas shale of which the company owns an excellent deposit.

At present the Thurber Paving Brick Co. is the largest producer of paving brick in the Southwest, and when this new plant is completed it will make Thurber the largest clay center in Texas.

Yours truly,
H. C. VANDAVER.

Manufacture Face Brick Exclusively.

Editor The Clay-Worker:

We have this season quit the common brick business altogether, in order to take care of the increasing demand for our Dixie Texture face brick. We have just booked the largest face brick order ever awarded in this section, which calls for 400,000 or more Dixie Texture brick for the Southern Furniture Exposition building. This structure will be 100x208 feet, ten stories high, and cost half a million dollars. We are quite proud of this order, for while our bid was not the lowest the beauty of the coloring in our brick won out. We are now shipping our Dixie Texture brick into five states, where only a few years ago we were making common brick only, and that for local consumption.

With best regards, we are

Yours truly,
SUMTER BRICK WORKS,
Sumter, S. C. I. A. Ruttenburg, President.

HOME BUILDING REQUIREMENTS.

Estimates going the round place the annual requirements of new dwelling houses in the United States as 600,000 with a present shortage of a million houses. At the very lowest average of $2,000 this would mean two billion dollars worth of new construction before us to be done. While estimates of this kind are more or less guess work they do give us a more concrete idea of what is needed and what may be developed in the home building line.

CHINA CLAY IN OREGON.

Out in Mollala, Clackamas County, Oregon, near the Southern Pacific Railroad, and within 50 miles of Portland, there is according to reports a new enterprise developing, the base of which is a deposit of china clay said to be equal to the best grades of English clay. The H. H. Daily Clay Products Co. has been organized at Portland, according to reports to the Bureau of Mines, to mine and ship this clay. Tentative plans call for the building of a railway spur to the deposit, the installation of loading facilities at the terminal, and transportation by the Pacific Steamship Co., by water to New York.

MOTOR TRUCK PROGRESS.

In a publication entitled "Facts and Figures," of, by and for the Automobile Industry" gotten out by the National Automobile Chamber of Commerce there are some interesting figures showing the progress of the motor truck as a substitute for the horse vehicle. The figures show nearly half a million trucks are now in use, and since trucks were being sold rapidly during and since the time these figures were compiled, we should be safe in assuming that this mark has been passed, and that they are still going strong.

It is estimated that there are 24,000,000 horses in the United States, and that it requires 120,000,000 acres of land to sustain these horses. The number of horses displaced by trucks is estimated at two million, which, according to these figures releases 10,000,000 acres of land for the production of human food which was formerly required to sustain horses.

That the motor truck is making progress there is no question or room for argument. The questions are those of how much progress, and how much more will be made in the near future. And when we add to the trucks the tractors finding their way to the farms now, there is raised an interesting question of how much in the way of farm produce may be turned from feeding horses to the feeding of man, and of other animals which make food for man.

WATCH FOR WILD-CATS.

Oil development during the past few years has added wonderfully to the wealth of the country, and it has also hatched out a great flock of wild-cat concerns that have been busy fleecing the guileless of their money. How to encourage the legitimate and kill off the wild-cats is one of the serious problems of the day.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. 72. SEPTEMBER, 1919. No. 3.

CURRENT COMMENT.

Keep the kiln fires burning.

* * *

Soft brick are hard on the profit account.

* * *

Stop the fuel leaks and hold down burning cost.

* * *

Make labor-saving devices do all the work they can.

* * *

Argue brick for the paved roadway when an opportunity is offered.

* * *

Be a booster for clay products, not a knocker against your competitor.

* * *

Clay products will stand the limelight of price investigation as well as the test of time.

* * *

For one thing, those road builders who build right and pave with brick will have no after regrets.

* * *

Lumber prices have gone so "wild" that converting the prospective builder to brick ought to be easy sailing now.

* * *

If you haven't already offered your solution to the railway problem hurry up and get it in before the contest closes for "Everybody's doing it."

* * *

One unkind comment on the Federal Trade Commission work is that it is strong on description of wrong doing but weak on prescription for curing the wrongs.

* * *

Those brick porch piers that have practically replaced the wooden columns not only make up an item in the aggregate that is worth while, but they are leading directly to brick porches with clay tile floors.

* * *

Work is not only the backbone of progress, but is the preserver of civilization and healthy humanity.

* * *

All this talk of putting this country on a real democratic basis should remind us that it has been on just that kind of a basis since 1776.

* * *

If this country is to attain and maintain commercial and industrial supremacy there must come a better spirit of cooperation from the workers.

* * *

The man who prides himself on making a good product as well as a fair profit comes nearer to being the ideal business man than he who looks to profit only.

* * *

We have now come to the real aftermath of the war and when we are through the travail of this we will be getting back to our regular rations and rationality again.

* * *

What labor really needs is not safeguarding against the oppression of capital, but protection from those pretended friends who are so busy at organization and agitation.

* * *

Eventually clay products will constitute the dominant item in home building, and the more intelligently and persistently this product is exploited the sooner this event will come about.

* * *

There has never been a time in the history of the industry when it was more imperative for the burners of clay to practice fuel economy than right now, for fuel saving means more in cost saving than ever before.

* * *

That War Industries Board which sought to assist in price stabilization had to yield the right of way and quit when it came in for a head-on collision with the railway administration. So now Old Supply and Demand are back at work, and making a fairly good job of it, too.

* * *

Evidence of a good spirit comes from Rochester, New York, in a report that two large corporations there are to undertake the building of 500 homes for employes, costing from $5,000 to $10,000 each, which are to be sold to them at cost. A little more of this should certainly do much to relieve any feeling of antagonism between those who work and those who pay.

KEEP THE KILN FIRES BURNING.

It is a time to keep the kiln fires burning and the manufacture of clay products moving forward. There are not only indications of an increased demand in the late building season, but there will, in many sections, be a demand right through the winter and next spring the call will perhaps start earlier than new stock can be produced. It will be better to carry a surplus of stock into the winter than to have the yards cleaned up. So keep the fires burning and the production going forward for this is the way to meet the needs of increased consumption of clay products.

BUILDING PROGRESS.

While building operations have been making fairly good headway and gaining in volume as the year advances there has not been enough to clear up any of the shortage existing at the end of the war. Indeed we have hardly kept up with the normal requirements, consequently we are still carrying a shortage of perhaps a million dwellings, and hotels and office buildings. From all parts of the country come reports of packed hotels and of difficulty of securing apartments, and a shortage of houses. This condition will, without doubt, run through the winter into the next spring building season when, if the signs read right, there should begin a building boom, the like of which we have never had before. It is a time to keep busy and keep preparing for bigger things the coming year.

THE PROBLEMS OF THE DAY.

Problems of the day in the clayworking industry may be divided into two broad classes. One of these is to promote a wider use of clay products, while the other is to improve production facilities so as to keep the cost of production down within reason and so enlarge the output as to be able to meet the increased needs.

Promoting a wider use of clay products is a problem which involves exploitation and propaganda to interest the public in the best building material on earth. This, however, is only one phase of the matter. There is involved also the matter of training more men in the art of brick contracting and brick laying.

At the production end the problem resolves itself into modernizing kilns, improving machinery equipment and adding labor saving devices, wherever practical.

If the industry will concentrate earnestly upon these problems all working together during the following winter another year will see a bigger business in clay products and the beginning of an era of better building.

DWELLINGS AND OTHER BUILDINGS.

There is some interesting data in a recent printed speech of Senator Wm. M. Calder, of New York. His estimate is that the normal building requirements of the United States call for the expenditure of three billion dollars in construction. He figures that of this total two billion is required for housing the people—presumably for dwellings and apartments—and the other billion is used for industrial and amusement purposes. In other words, according to the figures presented here, there is required for human shelter or dwelling purposes twice as much in the way of building as is required for industrial and other purposes. This seems to be striking, and, whether it is a wild guess or nearly correct, it serves to put emphasis on the importance of the home as an item in the building world and makes a stronger reason than ever for urging the great mass of the people to build brick homes.

HELPING THE BUILDER.

Those among the building material people who render definite assistance to the prospective builder have the best opportunity to secure a larger part of the trade in building material. This is partly because of the service rendered, and partly because the rendering of such service keeps them in close touch with the people who do the building.

The greatest assistance and need of the day is arranging ways and means for financing building, and it is here that the lumber people have been much more active than the building people. It is for this reason that many homes are built of lumber which should have been built of brick and perhaps would have been had the brick man been in closer touch.

The greatest line of help rendered the builder in financing his undertaking, that is the home owner, has come through building and loan associations. There are now 7,484 listed building and loan associations, with total assets of $1,898,344,346, and a membership of 4,011,401 people. The mortgage loans made through these organizations for home building during 1918 totaled $480,292,037.

How many brick men have identified themselves with this work and lent an active hand in the promotion and development of such building and loan associations? The lumbermen have been very active in this work for years and it is through this means that they have encouraged much new building, have sold the material for such buildings and have been able to get their own money with a satisfactory promptness. It is time, in view of the wider campaign for brick inaugurated for the brick industry, to take a more active part in this matter of helping the builder.

RIVALRY IN CLAY PRODUCTS.

Friendly rivalry is a good thing and stimulates research and development, but when in any line of industry we pass from friendly rivalry into active antagonism then much of the good disappears and many things are done that are unnecessary and unprofitable.

Rivalry in the clay products business, aside from that of competition between manufacturers of a given line, is found mainly between the different offerings for structural purpose. That is, we have some of it between hollow tile and common brick, hollow tile and face brick, and between face brick and common brick. Of these the strongest rivalry, which sometimes develops into an active and unwise antagonism, is between hollow tile and common brick, both splendid products with plenty of fine talking points.

Lately hollow tile has developed some new phases. At first it was used mainly as an inner backing to face brick or with a stucco finish for a face. Lately, however, the face idea has been developed in hollow tile so that the producers of this are neither inclined to encourage stucco finish nor to work so closely in cooperation with face brick for the simple reason that hollow tile itself is now taking on the face features.

Between face brick and common brick the rivalry is simply that of determining where, when and to what extent the common brick may be used for face work, and when it should be replaced with face brick.

As stated above, this is good and stimulating so long as it is merely a matter of friendly rivalry. It is something else when it becomes active antagonism. There is, however, no real call for anything but friendly rivalry between these different offerings for the simple reason that there is room for all if we will pull together for the exploitation of clay products and an enlargement of the field of consumption.

There is plenty of room for enlargement and plenty of market for all the different clay products if it is just developed in the right way. And that is the thing we hope to see in the future. Everyone pulling for clay products and no developing of friendly rivalry into active antagonism between the makers of different items.

FIRE PREVENTION PROPAGANDA.

In the Bulletin of the National Board of Fire Underwriters for August there is a great pictorial review of the big fires of the country which includes practically all of the important fires that have occurred during the past decade. This bulletin makes a special drive against the wooden shingle and a strong plea for fire prevention through the use of building material that will not burn. Also attention is called to the next fire prevention date, October 9, and a plea for voluntary work to promote interest in fire prevention on this day.

QUEEN COLLECTS POTTERY.

Queen Mary is an ardent admirer and collector of old Wedgwood pottery, and has often paid several hundred dollars a single specimen. At Windsor Castle there is a room devoted entirely to this famous ware, and here are displayed in cases some of the finest and rarest examples.

TO CONSTRUCT BRICK ROADS.

Dunbar and Franklin townships of Fayette County, Pa., will benefit by the decision of the Pennsylvania state highway department to construct five miles of brick road through the townships, which are west of Connellsville. Work will start early in the spring.

ELECTRODEPOSITION.

We have received from the Bureau of Mines, Department of the Interior, Bulletin 150, which is a treatise on the electrodeposition of gold and silver from cyanide solutions. This report is the result of investigations which have been carried on by S. B. Christy simultaneously with his duties as Professor of Mining and Metallurgy at the University of California during a period of 20 years. It is a very thorough compilation which should prove of great value to those interested in matters of this kind. It may be obtained from the Government Printing Office at Washington, D. C., for 25 cents.

MOTOR TRUCK DISTRIBUTION.

Recent statistics compiled by the motor truck people show that the farmers are the greatest users of motor trucks, the farmers of America having in operation at the present time 79,789 of such trucks. Manufacturers come second with a total of 75,928 and retailers third with 74,486. So far the brick industry has not come in heavily on the truck business except among dealers in the cities and there is seemingly room for a little more keenness on the part of brick manufacturers about trucks. Incidentally the indications are that with the farmers getting so many trucks it will be easier to sell brick for the farm because they can haul it easier with trucks than with horses.

HURRICANE DRYERS MEET A LONG FELT WANT AMONG POTTERS.

THE PHILADELPHIA Drying Machinery Company, Philadelphia, Pa., reports a gratifying demand for their "Hurricane" dryer, which is proving remarkably efficient in pottery and porcelain plants. As will be seen by their ad on the back cover page "Hurricane" dryers are especially adapted for drying china ware, sanitary and electrical porcelains and other high grade clay products, and they have recently increased their facilities in order to meet the demand which is growing as the dryer becomes better known to the trade. They announce that Mr. Joseph L. Buckley is no longer in their employ, having severed his connection with them September 10.

From being beseeched to furnish employment for discharged soldiers and others needing jobs awhile back, we are now being given warning that a great shortage of labor impends. Which just goes to prove that the best prophets can't see far ahead, and to remind us that industry can perhaps manage just about as well without government hurrah and intervention.

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LANCASTER IRON WORKS' NEW CATALOGUE.

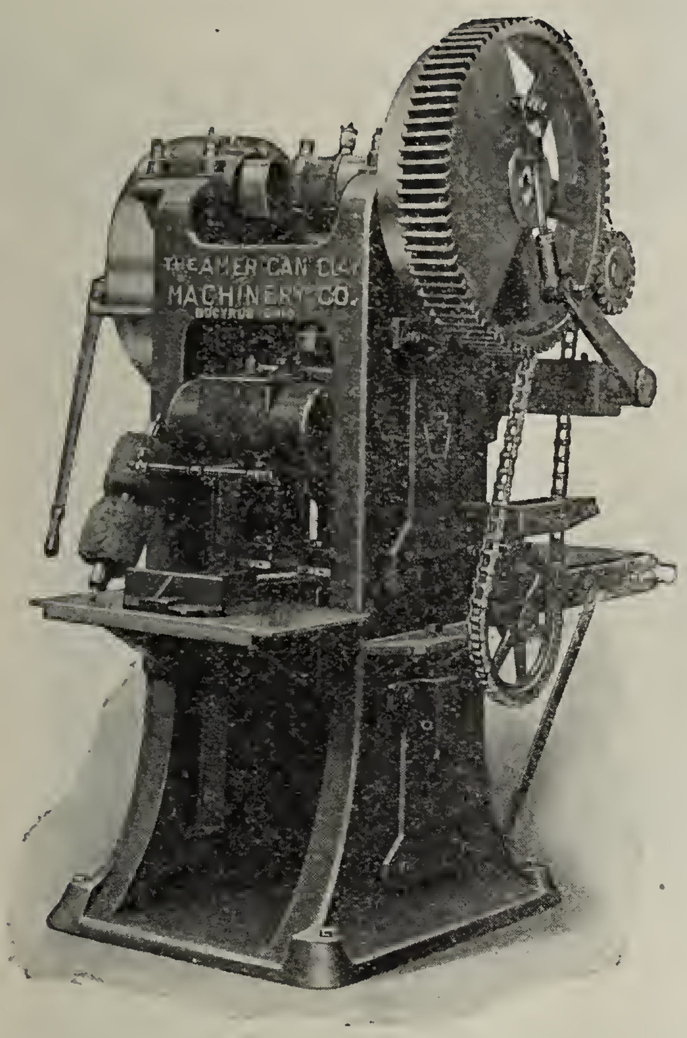
WE RECENTLY received from the Lancaster Iron Works, Lancaster, Pa., a new catalogue which sets forth with illustrated and descriptive matter the merits of the various clayworking machines and supplies made in their large, well equipped factory. The catalogue is a loose leaf booklet containing their catalogue A which deals with the subject matter; brickmaking, mining and preparing clay, molding, drying and burning brick, engineering work, spare parts, the Lancaster style "A" and "B" Power Driven Brick Machines, granulating clay feeder, pug mill, disintegrator, crusher, mold sander, brick molds, revolving dump tables, sand dryer, sand grinder and sifter, winding drums, clay and transfer cars, artificial brick dryers, portable cable conveyor systems, rotary driers, feed pipe, tanks, stacks and kilns.

The Lancaster Iron Works, Lancaster, Pa., whose ad will be found on page 284, will gladly mail a copy of this attractive catalogue upon receipt of request for same.

PRACTICAL CLAY TESTING

For Fire Brick, Face Brick, or Common Brick, Full size Brick made and burned. Difficult Brick Yard Problems Corrected. **L. W. FLOOD**

Lowe Ave., and 57th. St. Chicago, Ill.



American No. 292 Repress

American No. 292 Repress.

This is a press of reputation because it has performed in a way that merits all the commendation it has received. Let us send you the opinion of users or refer you to them.

The American No. 292 is the result of long experience in using and building represses. It is designed and built along advanced lines and performs perfectly.

Our No. 292 Bulletin will give you all the details. Write for it.

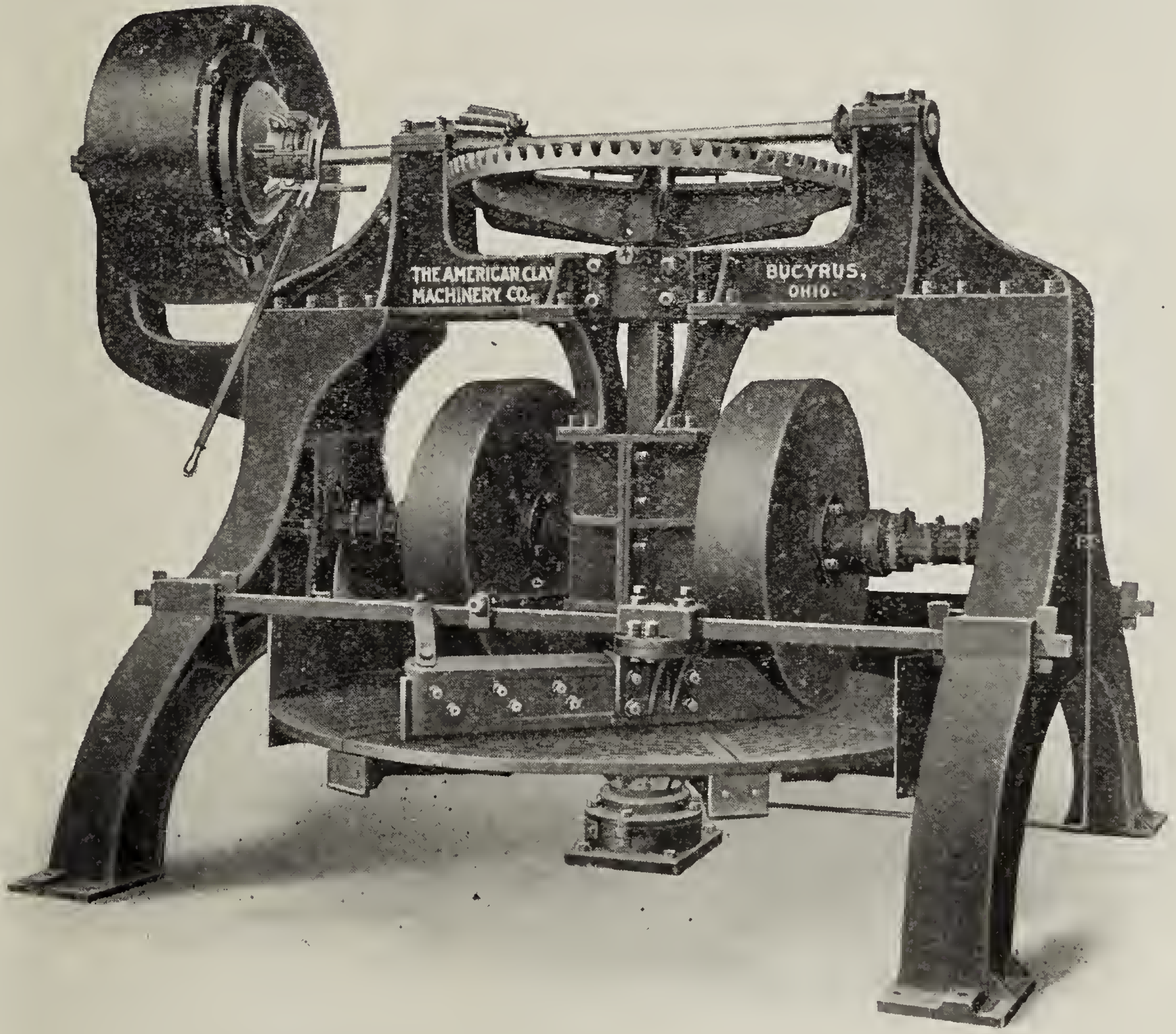
American Nine Foot Dry Pan.

There is more value in our pans than you can appreciate until you have tried them.

If you want to know what is said of them by the users, just write us or get our Pan Bulletin and see what we have to say about them. It's free.

**The American
Clay Machinery
Company**

Bucyrus, Ohio, U. S. A.

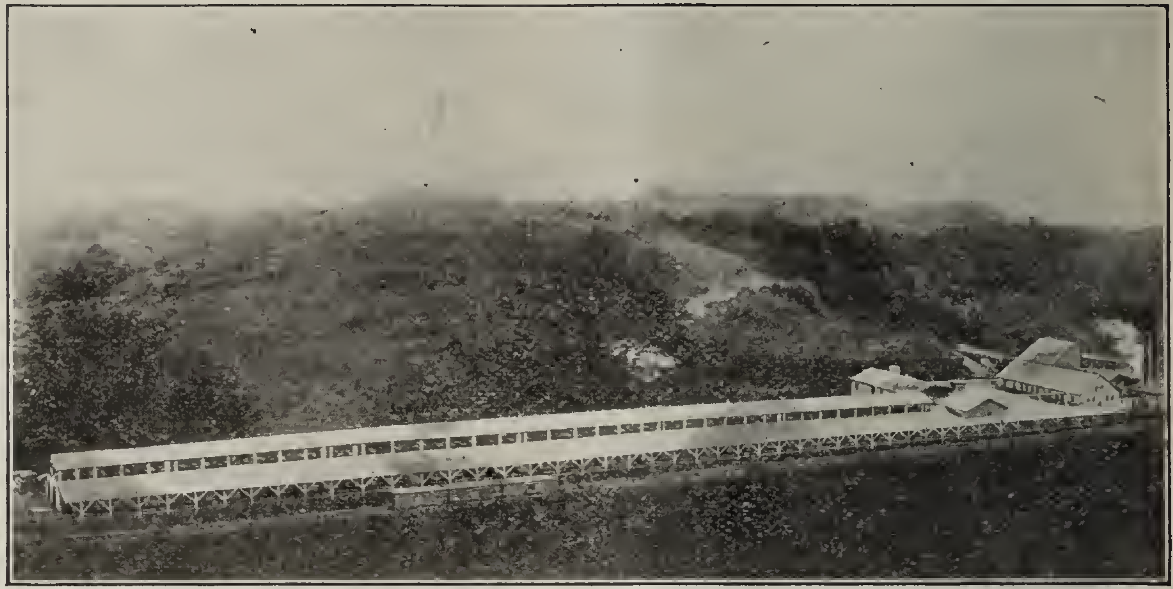


American Nine Foot Dry Pan.

"Built Right Run Right" Machinery Will Please You.

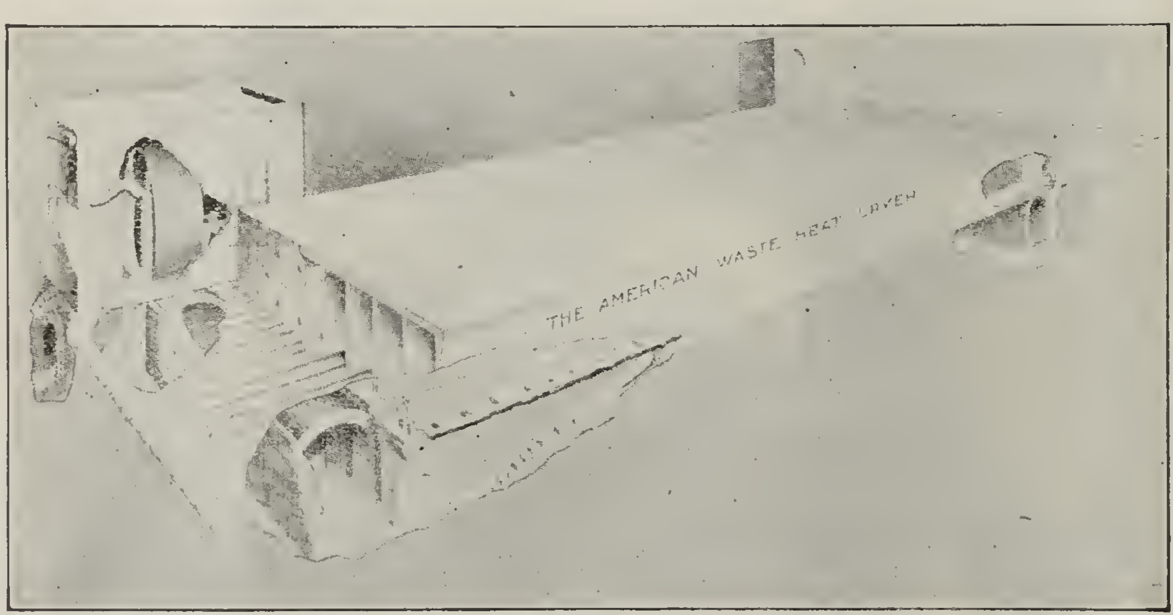
"Built Right Run Right" Machinery will "Save" and "Slave" for you.

The Haigh Continuous Kiln.



In results—actual results—there is no burning system superior to the Haigh Continuous Kiln. It has an accomplished record of economy which, if duplicated on your plant, would make you big dividends. We can accomplish it for you too, if you will give us the opportunity.

The Haigh Kiln did more to save coal for Uncle Sam than the restrictions placed on all the brick plants. It still pays to save coal, especially when the saving will soon pay for the installation necessary. Write for particulars and printed matter.


THE AMERICAN WASTE HEAT DRYER

American Waste Heat Dryer.

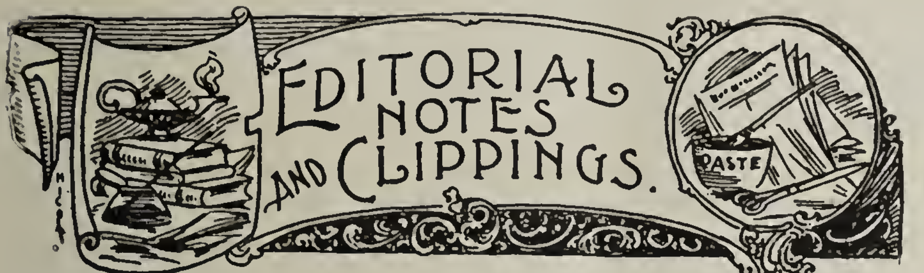
The American Waste Heat Dryer is a splendid ally of the Haigh Kiln. It uses the waste heat and gases from the kiln to thoroughly dry your product.

The two, working together, are the greatest producers of profits the Clay industry has ever had offered to it. Get printed matter.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Equip Right with "Built Right Run Right" Machinery.



EDITORIAL NOTES AND CLIPPINGS.

The Ebenezer Brick Co., of Newport, S. C., is in the market for a first class power equipment.

The Millin Brick Co., of St. Mary's, Pa., has been chartered. W. G. Bauer is at the head of the company.

The Van Dyke Silica Brick Co., of Johnstown, Pa., has been incorporated with $500,000 capital stock. F. D. Phillips and others are interested.

A company has been organized to manufacture brick tile and pottery at Irondequoit, N. Y., by Walter C. Harrington and W. F. and G. T. Hallauer.

The Hinde Brick & Tile Company of Sandusky, Ohio, sustained a slight loss recently when the roof of their main building was damaged by fire. The loss is partly covered by insurance.

D. E. Tracy has purchased the plant of the Municipal Shale Brick & Block Co., at Martinsburg, W. Va. He will install additional machinery with a view of increasing the capacity of the plant.

Falls Cities Hydraulic Brick Company has been incorporated at Jeffersonville, Ind., capital $50,000; to manufacture and sell hydraulic pressed brick; directors, Walter E. McCullough, George C. Kopp, Harry W. Elliott.

William T. McNutt of East Liverpool, Ohio, with several business associates, has announced his intention to erect a seven-kiln pottery here at once, $100,000. Mr. McNutt is president of the Allbright China Company of Charolltown, Ohio.

At a recent meeting of the stockholders of the Monroeville (Ohio) Clay Products Company, plans were completed for an increase in the capital of the company to $250,000, for the purpose of extending its operations. A drain tile plant will be erected at once.

The Urichsville Clay Company of Urichsville, Ohio, changed hands recently when S. O. McFall of Akron and Scot Myers purchased the controlling interest in the plant from P. A. Romig. Mr. McFall and Mr. Myers have been associated with the Robinson Clay Co. for a number of years.

A company has been organized to take over the plant of the Hillsboro Brick & Tile Co., at Hillsboro, North Dakota, and equip it with machinery for the manufacture of drain tile and hollow building tile. The company will also operate a ditching machine in their efforts to further the work of tile drainage in that section.

The Franklin Brick & Tile Company of Columbus, Ohio, has been incorporated with a capital stock of $1,500,000, and has taken over the property and good will of the Columbus Contractors' Supply Co. The office of the company is in the Columbus Savings & Trust Company with plant at Taylor's Station, nine miles east of Columbus.

M. C. Ransbottom, prominent pottery manufacturer of Roseville, Ohio, was severely wounded when an automatic revolver which he was carrying in his coat pocket was accidentally discharged, the bullet plowing through his right thigh from the hip to the knee. The accident occurred in the municipal court room, where Mr. Ransbottom had been called as a witness in an assault case.

At the postponed annual meeting of the Savage Mountain Fire Brick Co., Frostburg, Md., the following officers were elected for the balance of the year: Chairman of the board, Charles C. Gorsuch; president, John A. Caldwell; secretary, W. F. Caldwell; superintendent, G. A. Shuckhart, and assistant secretary, G. R. Harvey. The company reports that business was below normal during the first six months of 1919, due to the fact that all of its customers, being on the preferential list, laid in large stocks during the last half of 1918. Business during the last thirty days, however, has shown marked recovery and officials expect a good volume during the last half of the year.

The Fairview Brick Company of Detroit, Mich., has been incorporated with $25,000 capital stock.

Fire of unknown origin caused a slight damage at the brick plant of John H. Ward Sons & Co., Pittsburgh.

G. P. Dammon, of Conroe, Texas, writes that he is organizing a company to erect a brick manufacturing plant at that place.

E. E. Ellenberger, of Warriors Mark, Pa., has purchased the interest of T. J. Gates in the plant of the Colonial Clay Company at Tyrone, Pa.

The Wills Egelhof Co., Inc., 101 Park Ave., New York City, advise us that they recently booked a contract for the erection of the Citizens National Bank at Covington, Va. Alfred C. Bossom, of New York City, is the architect.

The American Sewer Pipe Co., 30 Church street, New York, a New Jersey corporation, has filed notice of change of name to the American Vitrified Products Co., and at the same time increasing the capital from $3,500,000 to $5,500,000.

The North American Brick & Clay Products Company of Mansfield, Ohio, has awarded a contract to the American Clay Machinery Company of Bucyrus, Ohio, for the erection of a ten unit Haigh continuous kiln, and work on same will start at once.

G. B. Lucket, general manager of the Crawfordsville Shale Brick Co., Crawfordsville, Ind., writes that they are oversold to such an extent that they have had to refuse considerable business. This company manufactures the well known "Afghan" matt brick.

The Breckenridge Brick Company has been organized at Breckenridge, Texas, with $40,000 capital stock, and a plant of 30,000 daily capacity will be erected at once. W. L. Hunt is president, Dr. V. F. Rhodes, vice-president, Eugene Curry, treasurer, and N. W. Dunham secretary of the company.

The Coleman (Texas) brick plant, which has been inactive for some years, has been sold to a New York concern. The plant will be enlarged and equipped with all machinery necessary for the production of building and paving brick, as well as drainage piping, etc. The shale contiguous to the plant is of a superior quality and lies in large quantities.

The U. S. Tile Company of Upper Sandusky, Ohio, formerly owned and managed by E. G. Blaser, has changed hands, and will now be operated under the new name of the Wyandot Clay Products Company, under the management of Robert L. Hare of Harpster. The plant will be modernized and will be made to produce not only drain tile, but hollow building brick as well. New kilns will also be installed.

Charles E. Taylor, of Little Rock, Ark., is interested in the establishment of a common building brick plant in a rapidly growing small city, and would like to get in touch with an experienced brick man who would be willing to invest some capital with him. He writes the prospect is a fine one, as there is a good demand for brick in the town, but he does not want to tackle the proposition alone.

After a conference of ten days between the committees of the United States Potters' Association and the National Brotherhood of Operative Potters at Atlantic City, a raise of 5 per cent. in wages was announced recently, becoming effective October 1. The operators had asked 25 per cent., but accepted the advance with the provision that a further increase be granted January 1, if the cost of living is not reduced by that time.

The Ironclay Brick Co., of Columbus, Ohio, has taken over the business of the Central Mortar & Supply Company. The latter concern has been identified with the building interests of Central Ohio for a number of years, making a specialty of colored mortars and other building supplies. The directors of the Ironclay Brick Company recently voted to increase their capital stock from $200,000 to $250,000 for the purpose of developing the newly acquired business.

The Huntington Brick & Tile Company of Huntington, W. Va., has been chartered and the following officers elected at the first meeting of the directors. President, Thomas M. Davidson; vice-president, J. J. West; secretary, L. I. Davidson; treasurer and general manager, C. A. Howell. The company owns what is said to be one of the best deposits of brick and tile in the country, and a plant will at once be erected to have a capacity of between 80,000 and 100,000 brick per day.

The Portland Drain Tile Company, of Portland, Ind., one of the foremost manufacturers of drain tile in Indiana, is developing a very good business on clay building tile. As a means of promoting their own business and at the same time helping the housing situation in Portland, they expect to build a number of hollow tile houses there this fall.

R. G. Eisenhart, ex-president of the N. B. M. A., writes that business has been very good with him this season. The Eisenhart family was made very happy this summer by the return from France of their soldier grandson, who spent two years in that country. He worked for the French until the American forces landed, when he went with Pershing, and returned home a first lieutenant. Blood will tell.

The Kokomo (Ind.) Brick Co. is running to full capacity and not able to supply the demand, according to a report by Howard Leach, general manager. An unusual amount of building is going on in Kokomo and surrounding towns, and the output of the company is sold sixty days ahead. The only thing that troubles the company is one that is common all over the country just now—the uncertainty of labor.

The employes of the Murphysboro (Ill.) Paving Brick Co. were given a voluntary increase of ten per cent. in pay, September 1, although the men had not asked for more pay at this time, and their wage agreement entered into early last spring does not expire until next spring. The company has in the neighborhood of 130 men on the payroll, and the plant is working every day and turning out vitrified building and paving brick.

A merger of the George S. Good Fire Brick Company of Patton, Pa.; the Clearfield Clay Working Company, of Clearfield, and the Clearfield County Mining Company, of Curwensville, with the Crescent Refractories Company, of Curwensville, under the corporate name of Crescent Refractories Company, is under consideration. Stockholders of the various companies will meet on October 2 to vote on the adoption or rejection of the agreement.

A tile and brick-making plant is now under course of construction at Clarion, Pa., on the Millcreek branch of the Lake Erie, Franklin & Clarion railroad, and will be ready for operation by the middle of November. The concern will be known as the Clarion Coal and Clay Company, and is capitalized at $300,000. C. H. Lehman of Philadelphia is president. The company will manufacture drain tile and building block and paving and building brick.

The South Richmond Brick Works, Wheeling, W. Va., were recently bought by a corporation and will be operated under the name of the Southside Brick Works, Inc. A charter has been issued by the state corporation commission, providing for a maximum capital of $60,000, and a minimum of $30,000. E. A. Stumpf is president of the new corporation; E. A. Stumpf, Jr., secretary, and J. J. Boehling, treasurer. Improvements are to be made at the works, which in all probability will be enlarged to a great extent.

The freight shipment facilities of the Acme Brick Co., West Bend, Wis., have been greatly improved at a recent decision of officials of the Northwestern road to have a switch engine in operation at the West Bend freight yards. This will greatly expedite shipments and avoid a congestion of loaded cars, as was often heretofore experienced.

The entire hollow tile plant of the Denny-Renton Clay & Coal Company, located east of Vancouver, B. C., on the North Bank highway, was entirely destroyed by fire. It is thought to have been started from a spark from the boiler flue. Exact figures as to the extent of the loss could not be obtained, but at the office of the company in Portland it was estimated that it would be around $40,000 or $50,000, partly covered by insurance.

The new plant of the Harrisonville Brick & Tile Company at Harrisonville, Mo., made the trial run September 9, and is now working full time, turning out 50,000 brick per day. Later on the capacity will be increased to 100,000 per day. The brick will be burned in continuous kilns. The officers of the company are George E. Nicholson, president; Frank C. Nicholson, vice-president and general manager. The plant was constructed under the general supervision of W. H. Merkel.

Edward Cox, president of the Pee Dee Brick & Tile Company, Blue Brick, S. C., writes that the demand for brick in their section continues good. They shipped a car load of Italian laborers from New York early in August, and Mr. Cox is to report later as to how the experiment worked out. They are getting $16.00 at the plant for their brick and cannot supply the demand. Tobacco is bringing a good price and the prospect for high priced cotton is promising, all of which helps the building situation.

James E. Granbery of Washington, D. C., has just purchased the property and plant of the Silicate Brick Company at Terra Cotta, D. C., and after extensive improvements and addition of much new machinery, the plant is to resume operations. Plans of the new owner include more than doubling the plant's present daily capacity of 40,000 sand-lime brick. Formerly owned by British interests, the plant was operated about ten years. In August of last year it was closed down, owing to difficulty in obtaining labor, etc. Mr. Granbery has bought the plant from the British interests that formerly owned it.

A liberal allowance for advertising and selling should be made in the estimates of brick costs, for production cannot draw its dividends till the product is sold and paid for.

CARS CASTINGS DIES

In our Foundries and Machine Shops we are prepared to furnish Dryer Cars, Clayworkers' castings and Dies of all kinds for sewer pipe press and machines, Etc. Write for Prices

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NOTES ON THE MANUFACTURE OF EARTHENWARE

By
Ernest Albert Sandeman.

A Practical Treatise Giving Detailed Particulars Regarding Materials, Preparation and Manufacture.

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FURNACE GAS PRODUCER

After Thorough Investigation

Has So Convincingly Demonstrated Itself A Fuel And Time Saver for Periodic Kilns That We Have Taken Over The Manufacture And Distribution Of It For the United States North Of The Ohio And West Of The Mississippi Rivers With The Exception Of A Part Of Pennsylvania.

Its Extremely Low Cost And
Simplicity Of Installation Brings
It With in The Reach Of Everybody.

For Further Information Write To

International Clay Machinery Co.

DAYTON, OHO

Mention The Clay-Worker.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.

DURING THE latter part of the month just past strikes in various railroad yards in California had a decided effect on the shipping industry throughout the state holding up commodities of all sorts, including building materials, clay products, etc. In the southern part of the state the tie-up was particularly acute and the clay deposits in that vicinity were forced to see their output held up for a period of over a week. Both steam railroads, street and electric transportation were involved in lower California.

With the exception of the inevitable lull noticed in material deliveries due to the effects of the strike, building activities are still on the upward path. While speculative building is still held in abeyance, much construction work of an essential character is on the boards for the coming month. Larger contracts are being closed from day to day, calling for a decidedly increasing amount of clay products. In other portions of the state practically identical conditions prevail. Through the valley towns of California the closing of an extremely prosperous agricultural season has been the impetus for the erection of many new structures both for business and residential purposes. Tile roofings and trims, brick foundations and other products of a similar origin are being used rather extensively for home building, while commercial buildings are creating a growing demand for common brick and the accompanying clay trims of various sorts.

For the purpose of still further stimulating building activities on the Pacific Coast a number of prominent business men of San Francisco have made public their views concerning the present situation and offered suggestions and plans for future development. Among these whose remarks along these lines have been carefully heeded is S. W. Straus of the S. W. Straus Company, an organization internationaly known as a promoter of business and finances of the highest order. The following statement is an extract from a paper presented to the press of San Francisco and seems to be accepted as a correct and concise summary of existing conditions:

"Almost one-half of the 1919 building season lies ahead of us and there is time for much good to be done toward relieving the housing shortage. In New York City, for instance, the figures in regard to this condition indicate a need for one-half billion dollars worth of new buildings, in addition to alterations, etc., which would run up into correspondingly large figures. In a somewhat less acute extent, similar conditions prevail in all important American cities including San Francisco. The coming winter will witness some suffering and a great deal of discomfort unless an immense amount of building work is done during the ensuing months. There is no fundamental reasons why anyone should postpone building operations at this time. Much harm has been done in the past through belief that prices might come down. However, we have a steady advance in all commodities and there is nothing to indicate a change in these tendencies. In all likelihood the longer the delay in starting building operations, the greater will be the cost of the enterprise.

What is needed right now more than anything else is mental stabilization, or a complete understanding by all interests that building costs are not coming down, but that they are steadily going higher. Holding off at this time marks a definite loss in view of increasing costs, while to build now means a continued and rapid advancement of one's investment provided it is made under proper conditions. With the present shortage of houses it is not likely that conditions of normality can be restored for several years. A tremendous amount of industrial expansion is necessary on the Pacific Coast as well as other portions of the country in order to meet new business conditions which will absorb capital, labor and building materials. We are bound to develop our resources more in the next ten years than ever before in our history. We are also getting ready for an export business such as we never dreamed of in ante-bellum days."

A new company engaged in the manufacture of various clay products including stoneware of many sorts, jugs, flower pots, etc., has been formed at Spokane, Wash., known as the Inland Empire Pottery Company. The clay used in producing practically all of the articles is obtained at Clayton in that state and it is claimed that the deposit is of a superior quality and a type that needs no firing to rid it of impurities. An exhibit of the products of the new company have been placed in the Spokane Chamber of Commerce. G. E. Wyne, president of the organization, operated a smaller plant prior to his service overseas, and now that military duty is a thing of the past, it is the intention of the reorganized concern to develop the business to a substantial volume.

After an interval of about six months, during which time the San Rafael plant of the McNear Brick Company of San Francisco suspended operations, activities have again commenced, the factory now running at full capacity. Several large contracts were recently closed by this company including the furnishing of 1,000,000 bricks to be used in the construction of a new twelve-story class A office building, to be erected by Balfour Guthrie & Co. on the southeast corner of California and Sansome streets.

The Pacific Sanitary Manufacturing Company, in order to supply the rapidly increasing demand for its products, has enlarged the plant at Richmond, Cal., operating on a more extensive scale than ever before. Practically all of the ware accumulated during the lull in building activities has been disposed of and plans have been made to increase the force of workers to a considerable extent. A new furnace is among the improvements recently installed in the plant. This company reports a decided growth in export possibilities and is giving this branch of the business important consideration.

San Francisco. SUNSET.

GATHERING OF ACCIDENT PREVENTORS.

There is to be a great gathering of the National Safety Council in Cleveland, October 1 to 4. It is expected that the bulk of the accident prevention talent of the country, 160 scheduled speakers, some 3,000 men and women engaged in safety work will be in attendance.

35000 OIL & GAS
BURNERS SAVING FUEL!
Perfected to
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HEAT TELLS!
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The Modern Way
1. Only one central coal location
2. Clean kiln yard
3. No cleaning of furnaces or relining them, or bag walls ever required
4. Minimum labor attention and responsibility
5. Much shorter kiln burning periods
6. Heavy saving of fuel
7. Increased burning capacity without additonal kilns.
8. A better and more uniformly burned product
9. Avoids smoke nuisance absolutely,
10. And many other advantages
PRODUCER HOUSE
The Old Way
1. Excessive and wasteful burning conditions
2. Requires wasteful manual labor
3 Longer kiln burning periods
4. Uncertain burning results
5. Expensive product wasted through improper burning
6. Heavy kiln repairs needed
7. Unsightly conditions, etc.

THE DAY OF FIRING KILNS BY HAND IS PAST

Hand firing kilns in most clay plants is tremendously wasteful. You are dependent on human element by hand firing—that means longer time than necessary. It is also impossible to get complete combustion by hand firing, and this results in a big percentage of fuel waste; besides, hand fired furnaces require many men where the plant is reasonably large, which are high priced and hard to get. Both of these problems and many others, too, are solved completely by the

UNDERWOOD PRODUCER GAS SYSTEM
(Patented)

This highly efficient patented equipment puts an end to wasted fuel by getting the very last unit of heat out of each ton of coal. It saves as high as 30 to 40 per cent. of coal, and similarly in labor in comparison with hand fired methods.

Our Gas System saves fuel because of its distinctive patented construction, insures completeness of combustion. It puts the maximum of generated heat in the kiln, thereby saving a big percentage of the heat energy that in hand fired furnaces is wasted in many different ways. Our Gas System cuts the cost of fuel requirements in another way by reducing from 40 to 50 per cent. of the time required for water smoking and burning, and it eliminates the smoke problem entirely.

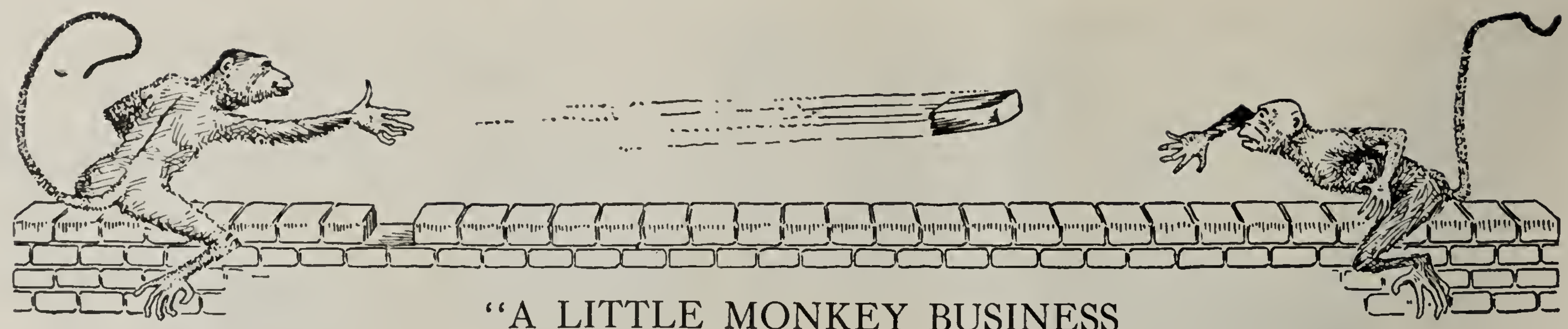
The degree to which our Gas System saves labor is demonstrated by the fact that the coal can be brought from the railroad cars direct to the gas producer platform automatically, thus not only eliminating man-power, but also horses, carts, trucks, etc. Moreover, one man per shift can look after the burning of a dozen kilns and do it far better than six or seven men by hand firing.

Our Gas System reduces kiln investment when a greater burning capacity is desired or required, for it will accomplish with six kilns that which requires eight kilns when hand fired, and at the same time prolongs the life of the kilns indefinitely since furnaces do not burn out, bag walls are not melted down, crowns are not wrecked, there are no furnace irons to burn out, no furnaces to clean. Our Gas System has plenty of reserve capacity. It requires no auxiliary draft equipment. It is a time tested device that is already saving money for scores of well-known concerns, and has proven beyond any doubt the most profitable piece of equipment ever installed in a clay plant.

Peace did not end the labor or transportation problems by far. Coal must be conserved, and the labor end controlled, so take the step now that will help insure maximum efficiency in your plant, and send for full facts about the Underwood Producer Gas System. We can save you money—let us show you how.

The Manufacturers Equipment Co.

Dayton, Ohio, U. S. A.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

All Out of Luck.

Two negroes were bemoaning their hard luck, when one said: "Why, nigger, I am so unlucky dat if it was raining soup my plate would be turned upside down."

The other replied: "Dat's nothing compared wid my luck. Why, if it was raining money I'd be in jail."

A Surprise Party.

Germany's present situation, as compared with her arrogant attitude of five years ago, reminds us of a little story. A wiry, undersized negro entered a saloon in Natchez, displayed a roll of bills and bought a drink. As he was paying for it a very large negro of brutal appearance entered. He looked at the little fellow and said: "Hyar, whar yo' git all dat money?"

The little fellow, ignoring the question, ordered another drink.

"Niggah!" roared the big one, "whar yo' git all dat money, I ast yo'? I'se de town bully, I is. Now, whar yo' git all dat money?"

The little negro stuffed his roll of greenbacks into his pockets. "Seems to me," he mused, "I ain't got nuff pockets to hold my wealth."

The big negro grabbed the little one. "Yo' hear me? I'se de town bully, I is. De town bully."

Quick as a flash the little fellow uppercut the big one, catching him on the point of the jaw and knocking him down. In a moment the floored negro revived enough to look up and ask humbly:

"Niggah, who is yo', anyhow?"

"Why," replied the other, blowing his knuckles, "I'se de pusson yo' thought yo' was when yo' come in."

A Thousand Years, My Own Columbia!

"I wisht I wuz a little rock
  A-settin' on a hill,
An' doin' nothin' all day long
  But just a-settin' still.
I wouldn't eat, I wouldn't drink,
  I wouldn't even wash—
But set and set, a thousand years,
  And rest myself, b'gosh."

—Tile and Till.

DU PONT AMERICAN INDUSTRIES

Nine Good Reasons for Electrical Blasting

1. With an electric blasting machine you can fire from one to one hundred and fifty charges simultaneously.
2. Electrical blasting allows better tamping and fullest confinement of the gases.
3. Fuller development of the explosive force, with consequent greater shattering.
4. Less smoke and fumes and quicker return to the working face.
5. Better results with smaller quantity of explosive, therefore cheaper.
6. With the Rheostat and Galvanometer the electric connections can be tested to assure detonation and to avoid misfires.
7. The shot-firer stands at a safe distance and does not operate the blasting machine until every one is out of the danger zone.
8. There is no need of matches, torches or open flame for detonation of explosives where electrical blasting is practiced.
9. *The dependability of Du Pont electrical blasting equipment, that leaves nothing to chance, but gives the operator control of the entire blasting performance. Du Pont blasting accessories are correct in design and efficient in service. They are the result or practical experience and scientific research,—the last word in modern, sure-fire blasting equipment.*

A free copy of our "Blasting Supplies Catalog" will prove helpful. Write for it today to Advertising Division.

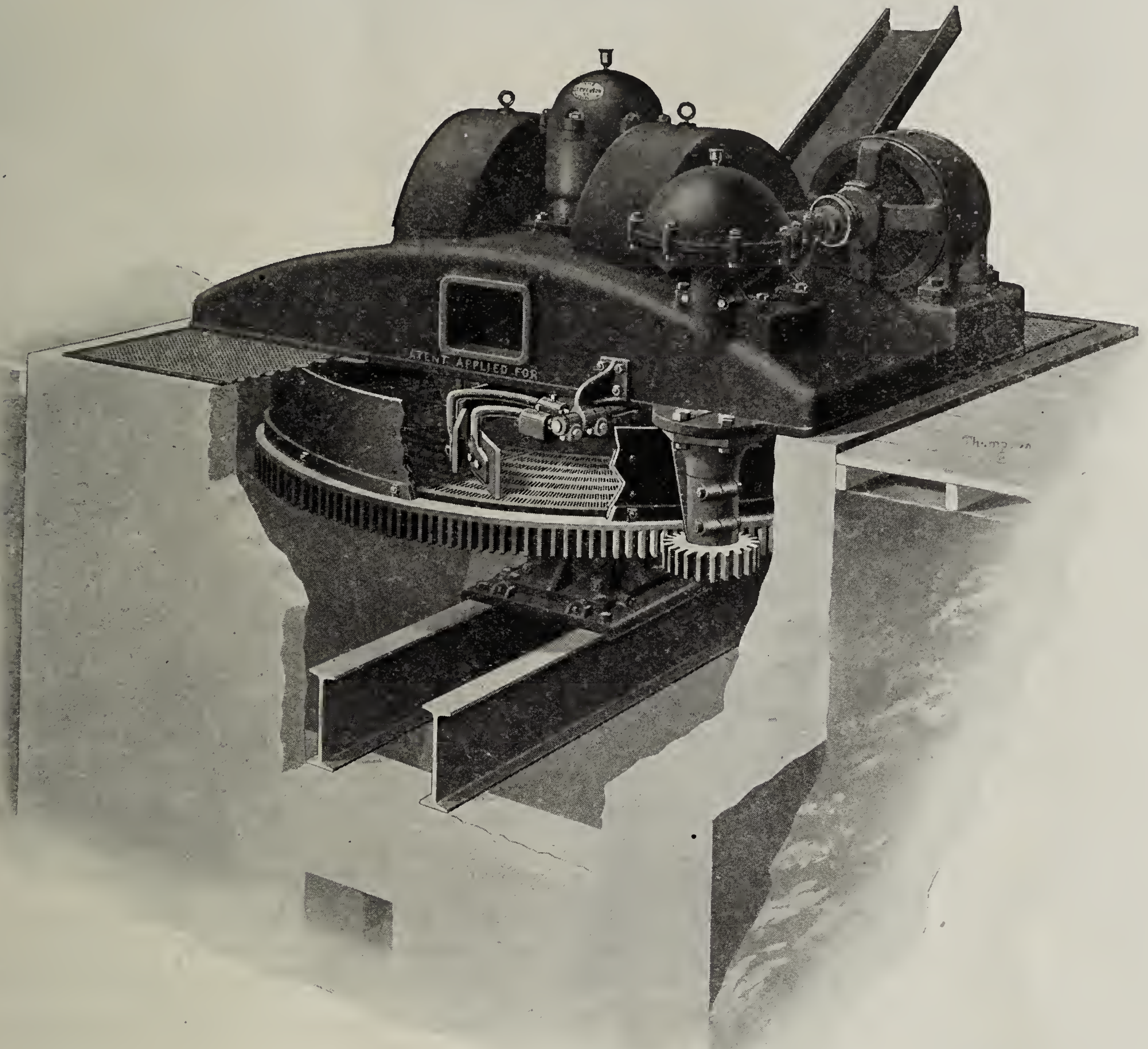
E. I. du Pont de Nemours & Co.

Wilmington, Delaware

Visit Du Pont Products Store When in Atlantic City

DU PONT

Grinding Pan Model A-300 With Step Bearing



Machines for

Crushing, Grinding, Pulverizing,
Empounding, Tempering, Mixing and for

Elevating and Conveying all kinds of Materials.

Steam Presses for Making Sewer Pipe, Drain Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO., General Office and Works, **Wellsville, Ohio**

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WHY not an "On-the-Job" *GANDY* instead of a belt that slips and slacks and bursts out lacings at critical times?

Genuine *GANDY* stitched cotton duck belting is the outcome of long study of traction power, shafting, machinery and kindred elements that enter into its use.

Genuine *GANDY* belting never cracks, rots, stretches. It stands the abuse of sun, rain, heat, steam, oil, grime and acid fumes—and is equally efficient for inside or outside work.

Many *GANDY* belts now in use have been on the job without intermission for periods of from 20 to 30 years.

Don't trust your production to slipshod belting.

Replace your "slackers" with "honest-to-goodness" workers.

Use our Engineering Department to secure the size and ply *GANDY* best suited to your particular work—and to be sure of the genuine *GANDY* BELT, look for the GREEN EDGE and *GANDY* trademark.

Faithfully,
"On-the-Job" *GANDY*
Service Manager.

The Gandy Belting Company
749 West Pratt Street, Baltimore, Md.
New York Branch: 36 Warren St.

GANDY
Stitched Cotton Duck **BELT**

Written for The Clay-Worker.

NOTES FROM DIXIE LAND.

SEPTEMBER SHOWINGS in Memphis evidnce good business for the brick industries, Terra Cotta and clay sewer pipe lines, fancy brick and building brick are very strong. Residential construction is on no big scale but warehouses, business structures, hospitals, theaters, churches, etc., make up for the difference and the need is manifest for many more residences and no doubt they will be erected in the next six months or sooner.

Several large brick buildings are being pushed to completion and some are just starting.

Work begins to loom up on the Pantages Theater of the Alexander Pantages Theatrical Circuit, South Main street near the corner of Monroe avenue, east side of the street. Architect B. Marcus Priteca, of Seattle, Wash., is planning this building. Part of the walls of the old Holst Building are being taken down and the structure practically built from the foundation. It is near the Western Union Telegraph Co. corner and next door to A. R. Taylor and Co's. book store. Sylliaasen, Sando and Gilbertson are the contractors and construction engineers.

Jas. A. Alexander Construction Co. is erecting a large two-story brick and steel and concrete building for Thompson Bros. and Price, wholesale cigar jobbers and Huling avenue. Memphis.

E. J. Pearson, contractor, and Hanker and Cairns, architects, have nearing completion a four-story brick store house for J. Goldsmith and Son Co., department store on South Main street. It is principally of brick.

Work is going forward right along on a three-story brick factory addition for the Memphis Furniture Mfg. Co., Camille street. The Miller Paving Co. are doing the cement work. The building is largely of brick and will about double the capacity of the factory. It will be completed in about four weeks.

Work is also progressing well on the new Methodist Hospital, Lamar Boulevard. This is a fire proof structure, with considerable ornamentation, terra cotta and brick work, incidentally. Thos. B. King is secretary of the building committee, Kaucher and Hodges have the contract for the building and J. W. Hull Plumber and Heating Co. for the plumbing, drainage and pipe work.

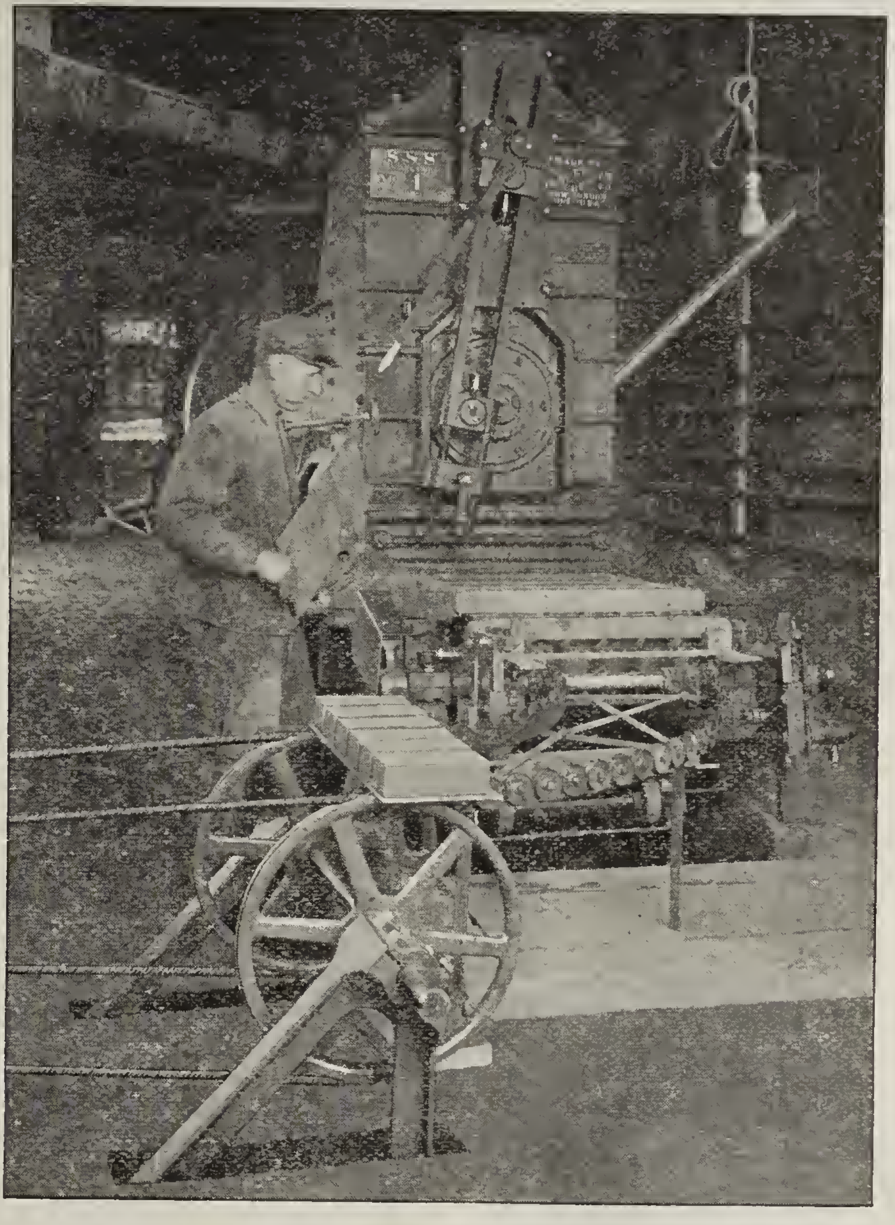
City Building Inspector Dan C. Newton figures the aggregate value of building permits in Memphis during August at more than one million dollars. One of the largest permits was taken out by the Fleischmann Construction Co., of St. Louis, to build the Loew Metropolitan Theater. Value of this permit was $400,000.

Fred D. Young, of Fred B. Young and Sons, contractors, has been named president of the General Contractors' Association to take the place of E. W. G. Meers, resigned. Mr. Meers resigned to accept the position as general secretary of the Memphis Builders' Exchange. James E. Faires, contractor, was named vice president of the association to take the place made vacant by Mr. Young. Mr. Meers former president was then elected secretary to the position formerly held by Mr. Faires.

The Board of Trustees of the University of Tennessee, at Knoxville, the medical and dental buildings of which are located in Memphis, were in Memphis a few days ago and it is announced that plans are under consideration for erecting a medical laboratory here in connection with the medical college on Madison and Union avenues. Several buildings are being put up at Knoxville by the institution which is maintained by the State of Tennessee.

DIXIE.

The S. S. S. Special
Automatic Soft
Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

Classified Advertisements.

WANTED.

To get in touch with a good man who thoroughly understands the brick business and has been successful in the manufacturing and marketing of brick. Man with some money to invest preferred. Real opportunity for the right man. Address, Opportunity, care The Clay-Worker.

9 1 dm

PRACTICAL MEN AND CAPITAL WANTED

We represent a client who controls 680 acres of high grade Fire Clay in Central Missouri. Seam of Clay 18 feet to 20 feet thick, overlaid with 3 feet of coal.

This is a splendid opportunity for any one desiring to engage in the fire brick or clay industry.

A. J. MEIER & COMPANY
Times Building
St. Louis, Mo

WANTED.

Buckeye Traction ditcher, size to cut trench 15 inches to 30 inches wide.

H. LAUTERBACH,
9 1 c Earlville, Ill.

WANTED.

Position by superintendent thoroughly experienced with good record at present making face brick and pavers. For particulars, address J. P. C.,

9 1 c Care The Clay-Worker.

Position open for superintendent of brick plant in the south. Capacity seventy-five thousand common brick daily. Request full information regarding experience, references, salary expected. Excellent opportunity for high class man. Address Georgia,

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FOR SALE.

FOR SALE.

Hollow tile plant in Pennsylvania, reaching all markets from Buffalo, East. Fully equipped and operating. Address,

BUFFALO,
8 3 d Care The Clay-Worker.

FOR SALE.

Brickyard on Hudson River, 70 acres good river front. Abundance blue and yellow clay, shale bank, equipment complete; three machines; room for one more, or with the material on property, paving brick or tile can be made. Small cash payment; balance on easy terms.

THE ULSTER BRICK CO.,
8 1 2 p Newburgh, N. Y.

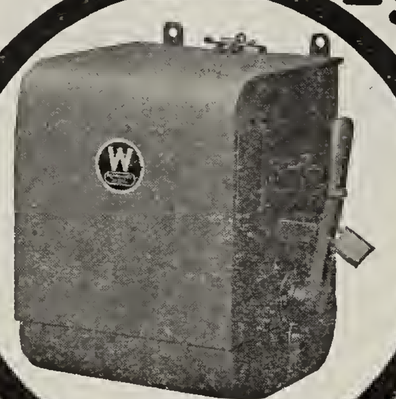
FOR SALE.

U. S. Government property. One 7½-ft. Patterson wet pan with unloading device and interchangeable plates, so that it may be used as a dry pan, mullers 6 in. face. One Patterson straight barrel vertical body pug mill, 16 in. in diameter. One Patterson Albany slip blunger, with 4x4 ft. tank, pulley 12x6 in., steel bottom and lined with vitrified paving blocks. This machinery has been in service about one year and is in good condition. Sealed bids will be received at the Bureau of Standards, 40th and Butler Streets, Pittsburgh, Pa., until noon, September 30, 1919. The machinery can be inspected at this address.

9 1 d

Type "A" Auto-Starter

FOR BRICK and CLAY INDUSTRY



Auto-starter complete

Auto-Starter with cover removed

To supply an auto-starter which would meet the rigid requirements of present day service, the Westinghouse Company offers the new type A auto-starter, with the following important features:

1. It has an open-hearth steel case.
2. It has a low-voltage relay, mounted inside the case.
3. It has fuses or overload relay, mounted inside the case.
4. It has a safety device that disconnects the motor when cover is removed.
5. It has a safety device to lock starter in OFF position when repairs are being made to machinery.
6. It has voltage-reducing transformers designed to permit changing from light to heavy duty starting.
7. It has non-inflammable micarta base.
8. It has contacts the same as used in steel mill automatic, and heavy main line locomotive controllers with a rolling and wiping action when opening or closing.
9. It has contacts mounted in such a manner that they may be removed or replaced without disturbing the wiring or the mounting of the starter.
10. It has special insulation in the voltage-reducing transformers.
11. It can be installed with or without conduit.
12. It requires minimum expense for installation.

In the development of this auto-starter, no detail has been omitted to—

Insure greater safety to operator.
Afford the best protection for expensive machinery.
Reduce the expense of upkeep and installation, and
Give greater reliability in operation.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.,
East Pittsburgh, Pa.

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Westinghouse

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. 72. INDIANAPOLIS, OCTOBER 1919. No. 4.

INDUSTRIAL PROBLEMS: How Some of Them Have Been Solved by the Burton-Townsend Brick Co., of Zanesville, Ohio, by the Installation of the Coal Car Unloader and Other Labor Saving Devices, Now More Essential Than Ever Before.

LABOR TROUBLES dominate the industrial world. Not alone here in the "land of the free," where labor has always been well paid is there turmoil and strife, but in England and other European countries, strikes and other symptoms of labor unrest appear to be the rule rather than the exception. This is a condition which naturally follows in the wake of the great world war which revolutionized methods of production and wage rates. We are in a period of readjustment, which it is to be hoped will ultimately prove beneficial to both employer and employe. While we are wrestling with the subject, it is apparent to every manufacturer that labor-saving devices are essential, more so than ever before. Particularly is this true in clay-working plants where much of the labor required is strenuous and exacting.

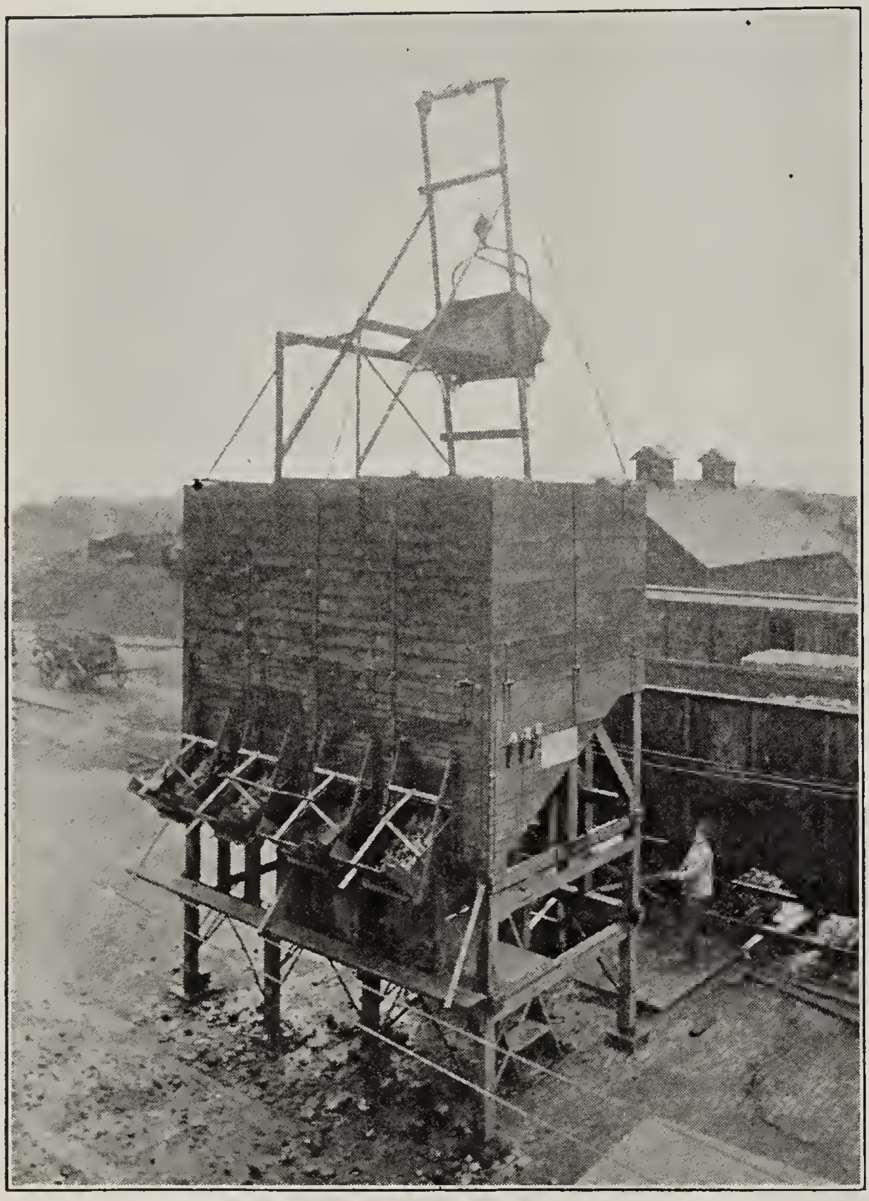
Unloading Coal from Cars on Siding at Burton-Townsend Brick Plant, Zanesville, Ohio.

The production of clay wares requires much labor. A great deal of the work about the plant is hard, though healthful, as a rule. How can this labor be lightened and the output increased, is a problem that is puzzling the captains of the clay industry. In one branch of the work, that of handling the fuel, it has been solved in a large measure by the introduction of automatic machines and appliances, and we are pleased to illustrate a device that has been in successful operation at the plant of the Burton-Townsend Brick Company at Zanesville, Ohio, during the past season.

To unload a car of coal by main strength and awkwardness in the old-fashioned way, by hand shoveling, is one of the hardest and most undesirable jobs about a plant. To unload a car of coal by hand costs, on an average, twenty-five to thirty-five cents a ton for labor. Ofttimes, by demurrage and other unavoidable items, the cost is increased to nearly double that sum. Considering the scarcity of labor, and the undesirable character of the job of shoveling coal, the item of cost is liable to be much larger in the future than it has in the past.

Appreciating these facts, the Burton-Townsend Brick Company, Zanesville, Ohio, to whom we are indebted for the accompanying views, installed at their plant a Galion Industrial Unloader, and are much gratified at the saving which has resulted, both in money and labor. Mr. Lucktenberg, the general manager of the plant, estimates that they are saving approximately $8.00 per day, and adds, "We have been coaling our kilns, and handling ashes with three carts and a team, and now find with the Galion Coal Unloader we do this same work with one team, using a dump wagon with side-boards that will hold one and three-fourth tons of coal per trip, making five to six trips per hour, and a little help from a cart to handle ashes. The change involves keeping a man dumping and hoisting coal to the bin, a comparatively easy job, and consequently not difficult to fill."

One advantage of this device is that it is practically fool proof, any ordinary laborer can soon learn to operate it, with little or no trouble. It is operated either by electricity or a horizontal gasoline engine. The cost for power is negligible. Under normal conditions a car of coal can be unloaded by this device in two hours or less at a cost of two to four cents per ton, only one man being required for the work and his job is a pleasant one, compared with that of the disagreeable and laborious one of shoveling coal. If storage bins are used in connection with the Galion Industrial Unloader, the wagon or the motor truck can be loaded by gravity directly from the bin and less than two minutes will be consumed in the operation. This ought to appeal to the average brick and tile manufacturers, who have been accustomed to pay a crew of men for shoveling coal.



Coal from Car to Wagon Via Galion Unloader.

Those of our readers who are interested are requested to correspond with the Galion Iron Works, Galion, Ohio, who will be pleased to send illustrated catalogue, which contains full description of the device, with outline drawing, showing details of the construction in full. Better still, it will pay them to visit the Burton-Townsend Brick Company's plant at Zanesville, where they can see the unloader in actual operation, and will find other modern devices of great interest. On pages 256, 257 and 258 of the Convention issue of The Clay-Worker will be found a description of the plant, with many interesting views, which was presented before the Pittsburgh Convention by Mr. R. C. Burton, who in the course of his address, said: "We are very glad to have brick men come to see us. We realize that every man who pays us a visit has something in the way of practical information to pass on to us, and our foremen and other workmen have found that they can learn more about making brick from hearing other men's experiences than they can in any other way." Hence, a visit to the Burton-Townsend plant, will prove a source of pleasure and profit both to those looking for pointers on economy of operation and modern equipment. A cordial welcome awaits visiting brick men, especially members of the N. B. M. A.

THE CLAY WORKER'S POWER PLANT.

The POWER PLANT of the clayworker is not only a subject which merits attention here now that interest may be awakened and changes and improvements made during the winter season, but it is also one among the good subjects which may well be taken up at the annual meeting of the National Brick Manufacturers' Association and given the attention of our greatest power plant authorities.

As we make progress in the use of mechanical appliances and labor-saving devices to do the burdensome work formerly done by man and by horses, we increase the comparative magnitude of the power plant because this is the source of mechanical power.

Today the use of mechanical power has become extensive and the chances for economy are so great comparatively because of new development on the one hand and increased cost of fuel on the other that the man who fails to keep up-to-date in his information and to improve his power plant equipment accordingly, may soon find himself burning up most of his chances for profit in power production.

There are several different kinds of power plants, or one might say, various sources from which power may be derived for use in the clayworking industry. There is the steam power plant where power is transmitted directly by the use of shafting and belt drives; there is the steam power plant with electric transmission; there is the internal combustion engine, using either natural gas or gasoline, and there is the buying of electric power from some central producing plant which may be operated either by water power or by steam. At times a man is called upon to choose between these and finds it a puzzling question. At other times circumstances or local conditions practically determine which form of equipment he should use, and it then becomes merely a matter of figuring out economy in the details of plant construction and equipment to get the best service out of both the production and the consumption of the power.

It is interesting to note the progress of the internal combustion engine, especially for small plants, and as a supplementary power factor in the larger plants. For example, among the larger plants the gas engine and the electric motor, between them are doing quite a lot to crowd the field of the locomotives and the dinky and some of the subsidiary engines used for quarrying, mining and transportation operations. The gas locomotive has long since passed the experimental stage and has justified itself in many instances; in short, it has become a factor in the power element even around the larger plants where internal combustion engines would not likely be thought of as a main source of power production.

The electric motor has entered into the same field of operation, too, for industrial locomotive work, the operation of hoists, cranes and other equipment in this class. Here, however, there is a chance for confusion. The electric motor is not in itself a power unit, the electricity must be produced at a power plant and the power unit in this case would logically be either the central power unit of the clayworking plant itself or a larger unit located at some accessible place from which power is being obtained.

It is doubtful if the clayworking industry has made as much use as it should or as opportunities have offered of the electrical end of the business. Other industries seem to be leading the clayworking industry in this. Many of them have long since turned their main power plant into an electrical power plant and have used electric transmission everywhere, putting individual motors on various machines, thus affecting a saving in shafting and making more satisfactory arrangement of machines and plant layout easy of accomplishment. There is a splendid line of study here for the clayworking industry and if we could have an elaborate paper by some authority on the subject at the next great gathering of the clans covering this phase of the matter it should be well worth while and help considerably in furnishing light on definite points involved in a wider and more general use of electricity in the clayworking industry.

As to internal combustion engines, those clay workers who are fortunately enough situated to have a natural gas supply find the gas engine the simple solution of the power problem just as the use of gas furnishes a simple solution to their burning problem. What is in mind here, however, as meriting a little more special attention is the possibilities of gasoline engines for those clayworking plants where the power equipment is limited or the power may be so widely distributed at distant points that it is better to have a number of small power units than one central plant. Considerable progress has been made in efficiency in gas engines and many types and patterns are offered not only for burning gasoline, but for burning coal oil or a mixture of gasoline and coal oil, and where the power requirements are limited the best of these seem to furnish a solution to the power question for the man who requires only a limited amount of power.

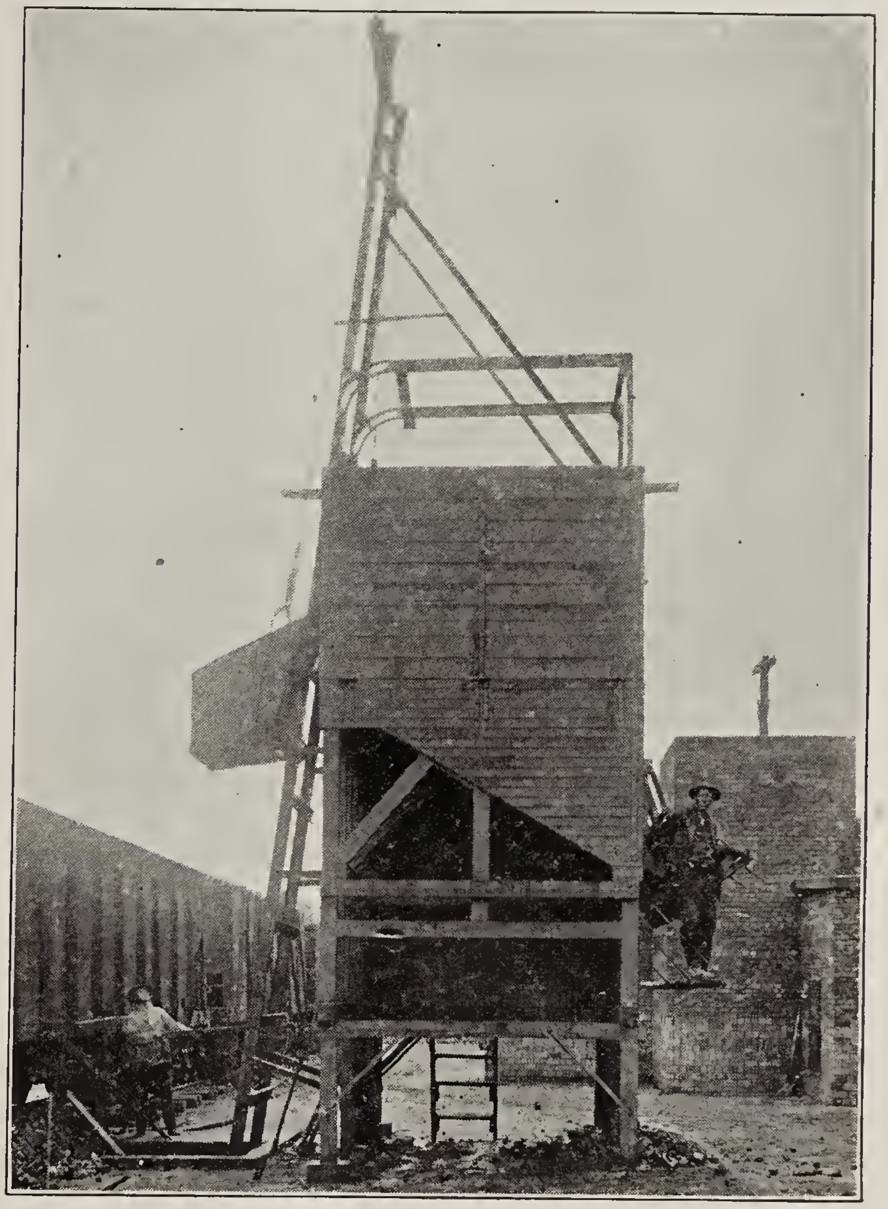
Just where to put the limit is not an easy question to answer. We used to argue that the gasoline engine was a paying proposition anywhere up to 25 or 30 H. P., and that above that it was more economical to use steam power. Late improvements have made the gas engine practical in competition with the steam units above this, but just how far above depends some upon local conditions. The main point in distinction to keep forward as a deciding factor is, the steam engine, in addition to the calling for coal and water, requires the services of a fireman, while a gasoline engine does not require such service. With labor scarce and extremely high in price, the eliminating of a fireman is an item of considerable weight in favor of the gas engine.

For those who take up the gas engine, there is another point that should be brought forward and perhaps emphasized, and that is the matter of horse-power rating. Many men who in earlier days have turned from steam power to gas power have met with disappointment because the gasoline engine of a rating equivalent to the steam engine would not furnish the same power nor render the same services. Yet in the face of this it is an established fact that the gasoline engine as a rule has been properly rated from a scientific basis. The trouble comes from the fact that the steam engine has been producing byond its horse-power rating. This is especially true of the smaller units. Often an engine rated at 25 or 30 H. P. has been made to produce from 40 to 50 H. P. Naturally, when an engine is put into competition with it which is not only rated 25 or 30 H. P., but produces that and no more, it proves disappointing in competition with it.

The explanation for this is that while the steam engines were properly rated in their earlier days there soon followed a marked improvement in their construction which resulted in higher power production while the old ratings based on a given diameter of cylinder length of stroke still held. Both engines and boilers were improved, higher pressure was put into use and economy in the use of steam was effected until in many instances the smaller units in steam engines were producing probably double their H. P. rating. This is a thing that leads to misunderstanding and some confusion in changing from steam to gasoline, and it is a matter that should be kept in mind if one would avoid error in power equipment.

Another thing, the steam engine will stand strain and overload better than a gas engine. You can load a steam engine down until you check its speed materially, and still you are not injuring the engine, but when you go to loading a gasoline engine until you check its speed materially, you are getting into trouble.

The answer to all this is that in changing from steam power and direct belt drives to either gas power, or to electric transmission and the use of motors instead of belts, there must be a thoughtful overhauling of horse-power ratings and ideas. Otherwise, gas engines or electric motors, as the case may be, are likely to be installed that are too small, which in turn means trouble, expense and disappointment. When proper heed is given, however, to the amount of power needed and the proper rating of motor or gas engine as the case may be, there are not only satisfactory results, but often a marked saving in power cost may be effected by their use.



The Galion Unloader, a "Close-Up."

The problem of the power plant and the clay worker is so big and broad and so varied that it is not practical to give it anything like the detailed treatment required in a single article, and if it were, each plant has its own individual problems that must be figured out in the light of local surroundings. Yet it is time to call attention to the importance of economy in power plant equipment and operation, not only because of the increased cost of the fuel and of help, but also for the reason that mechanical power is being more extensively used as a means of saving labor, therefore it is growing in magnitude which naturally adds to its importance.

Those who have power plants have before them a question of what may be done to improve them, where they can make additions and changes and get greater efficiency thereby, or where they should change and follow new plans of operations to put in a new power plant entirely. After all, the main thing is to get attention properly concentrated upon the problem of the power plant. When the industry gets its attention centered upon this point the solution of its many and varied problems will be found and progress and benefit will result.

Written for The Clay-Worker.

SOME WINTER WRINKLES.

WINTER TIME calls for some difference of treatment and some special attention to equipment, no matter whether it is kept in use or not. But since many plants are shut down and much of the equipment is not used through the mid-winter season, the more important thing for discussion right now is that of how to put away machinery and equipment so that it will keep through the winter with the least possible damage, and can be put into commission in the spring with the smallest amount of work and trouble.

The first point to keep in mind is this—that the time to clean up and paint up, at least take stock of repair parts and needs and make out requisitions for them, is when you are putting the stuff away for the winter and not when you are getting ready to put the plant in shape for operations in the spring. This not only saves time and trouble in the spring, when time is a more important element, but it helps preserve the machinery and equipment in better shape.

Take the simple item of belts, and most any one will agree that the belts should not be left on the pulleys in the plant through the winter season. They should be taken off and put away. Now, in taking them off to put them away the right idea is to clean the belts thoroughly and make whatever repairs are contemplated before rolling them up and putting them away so that when the time comes to put them on again all you will have to do will be to unroll them and put them on. Doing all the cleaning and repairing when you put them away helps preserve the belting in better shape and it will be appreciated when starting time comes in the spring and all you have to do is put the belt into place. On the other hand, if the cleaning and patching up is neglected then, when spring comes, there will be belts to mend, other belts to order new and there will be valuable time lost and much temper tried. The time to do all that is when you are laying them away for the winter.

It is the same story with other incidental equipment. Take the matter of wheelbarrows as a case in point. They should neither be left out, scattered here and there, nor piled up indiscriminately in some shed without attention. The best advice on the subject of wheelbarrows is some offered in a recent article in "Successful Methods," which says:

"The old method of repairing wheelbarrows was to look them over and endeavor to locate only the broken parts. Such parts were then ordered and the repairs made. If the wheelbarrow handle was broken, the repair man would chop out this one handle and install a new one. This was a slow and expensive job and it would take a man all winter to repair a few wheelbarrows. The proper way is for the contractor to take every broken wheelbarrow apart, to throw away all of the poor parts, pile his good trays, good wheels, good legs, etc., in their respective piles, and then start in to reassemble his wheelbarrows. The result is that the good parts will just about match up and that out of possibly a lot of 200 or 300 crippled wheelbarrows, there will be in the neighborhood of 100 good ones. Then it is necessary to order only enough repair parts to make up the odd good parts remaining. Both steel and wooden wheelbarrows should be painted."

All machines and machine parts should be cleaned and all bright work and other parts likely to be affected by rust should have a protecting coat of grease or paint, the bright parts grease and the body parts some form of metal paint that will protect them and will also improve their appearance. If you have a steam hose this is a splendid thing to clean machinery with as it will cut the grease and the force of it will wash it off pretty thoroughly. If no steam hose is available, coal oil or gasoline may be used, but as these carry an element of danger from fire, their use should be surrounded with all of the precautions that go with the handling of gasoline. Hot water with strong soap or any cleaning compounds for the purpose may be used successfully; after cleaning, of course, the metal parts should be dried thoroughly, then as stated above either painted or greased.

For greasing, some heavy body grease should be used that will hold through the winter and protect the metal. There are plenty of offerings of this kind available and it is likely that at many plants satisfactory grease will be found already in stock.

In the cleaning and painting and putting away of machines and machine parts they should all be examined and a list made of the repairing to be done. This should include new parts and supplies to be ordered and also work that can be done during the winter time. It is much better to do this while putting the equipment away than to wait till spring because it gives you an idea early of what may be required and may save you expense and trying delay. If you wait until spring to inspect and repair, some parts are likely to be needed which it will take time to get, and there will be a general hurrah that will be trying to temper, and expensive financially because of the delay involved.

To get a little more specific about the use of paint and grease we may say, for example, that sprocket chain drives and sprockets on which they go and exposed parts of shafting should be well coated with grease; excavator chains, buckets, scrapers and similar equipment should be cleaned and then given a protecting coat of paint. In fact, every exposed metal part, whether it is painted or covered with a coat of grease. Wire rope and cable should be thoroughly greased, and as stated above all leather, rubber and composition belting should be cleared, put in order, and then packed away preferably in a box or some dry place.

Some contend that in putting away cars they should have all the brasses taken out and boxed and the bodies dumped and propped up so that all the dirt may be cleaned out of the corners and have a general going over, the wearing parts oiled or greased and the exposed parts painted and put in shape generally so they may be ready to put in service immediately.

The same idea of cleanliness, grease and paint, should be carried to the boilers and engines no matter whether they are the larger boilers and engines of the power plant proper or the hoists and dinkies used here and there about the place. The boilers and exposed pipe should be cleaned off, the furnaces cleaned out, boiler flues thoroughly cleaned out and then swabbed with grease to prevent rust. The cleaning should even extend to the inside so that when you get through your boiler will be in spic and span condition ready to fill and start the fire. Note can be taken of the repair needs on the furnaces and boiler walls and these made at leisure during the winter just as machinery repairs are made but be sure and make a note of them so that they can be attended to.

In preparing an engine for rest the best plan of all is to take off the steam chest cover so that the valves may be thoroughly oiled, take off the steam cylinder head for the same purpose that the cylinder may be thoroughly dried out inside. Pull the piston back to the back end first and then coating all of the cylinder that can be reached with oil or preferably a thick grease, then move the piston forward and run some heavy cylinder oil in behind after which if the piston can be moved back and forth a time or two it will spread the oil to that part of the cylinder that cannot be reached by hand.

If it is not practical nor desirable to go to this extent the cylinder of engines should be thoroughly drained, then enough heavy cylinder oil worked into them to insure protection during the idle period against the possibility of rust on the interior of the cylinders or in the steam chest.

Then, of course, all the engine parts should be overhauled and cleaned, the bright work covered with a protecting coat of grease and the bed and body, if it needs paint, should be given its coat of paint early. After all this is done it is well, even though your engine is under shelter, to take a tarpaulin or some other material of this class and cover the engine over with it. This prevents the accumulation of grit from the dirt or dust that may be dropping or blowing about.

All outside equipment should, of course, be gotten under shelter or covered with heavy tarpaulin where this is not practical. Then all parts that are to have attention in the way of repairs and shop work should be gathered at the shop or some place where they may have this attention under shelter during the winter time and not left scattered here and there. In short, the more system and thoughtful attention which is given to putting the plant to rest in early winter, the less will be the loss and depreciation on machinery and equipment during the winter period and the easier will be the job of putting it in order and starting it up again in the spring.

THE BRICK NEEDS OF AUSTRALIA.

A RECENT CONSULAR report deals with the Federal Housing scheme in Australia and says some things about the need of brick and the call for speeding up the brickmaking industry there which should spell opportunity for our brick machinery people. It is figured that on the basis of present estimates the total yearly construction for one locality will be about 25,000 houses. From this it is figured that to meet the deficiency of three eastern states alone and calculating on building 25,000 four-room cottages with kitchens, 875 million brick will be required. From various sources of information a special commission in charge of this work estimated that in 1914, a period of great prosperity, the total output of brick in Australia did not exceed 500 million. From this it will be readily apparent that the brick industries of Australia need speeding up, and we may logically argue that they need labor-saving machinery and equipment. This ought to furnish an opportunity to our brick machinery people to do good for themselves and for the other fellow at the same time.

MAKE A NOTE OF THIS.

AT A RECENT gathering of the national organization of retail lumber dealers the statement was made that there are 45,000 retail lumber yards in the country, which distribute annually 27 billion feet of lumber.

These yards handle various other products, including roofing, lime, plaster, cement and brick. They should be handling quite a lot of brick, and if brick is to replace lumber extensively in home construction during the next year logically quite a lot of this brick may properly be distributed through the same retail lumber dealers.

Allowing for the city yards which specialize in lumber and leave off most of the side lines and where brick dealing is a special line itself, there are between 25,000 and 30,000 lumber yards, the owners of which may become active agents for brick if the proper effort is made to enlist their co-operation and due regard shown for taking care of them in the way of remuneration for their selling services.

The thing for the progressive brick man to make a note of in this connection is this: The retail lumber dealers in the country are organized into state and regional associations and these have their annual meetings during the winter season. At these annual meetings is a splendid place to get in touch and to start developing a line of co-operation for better home building which will include the use of a larger volume of brick.

Every brick manufacturer should get in touch with the officials of these associations, get a line on the date and place of the annual meeting, and then strive to have clay products on the program as a subject for discussion, and manage to see that the subject is properly handled.

Getting in touch with these local dealers will help a lot in the work of putting brick into home building and widening the field of the clay-working industry.

THE GOOD ROADS BUILDING.

THE AUTOMOBILE Trade Journal, which has compiled statistics of the road building projects including the work of the present under way and that in prospect estimates that approximately 350 million dollars is to be spent this year. Also it opines that it is merely a drop in the bucket in comparison with the amount of money that will eventually have to be expended to put our roads on a basis to compare favorably with the old countries or with what they should be.

The Dixie Highway is to be completed this year and road building is going on everywhere. In some states in greater volume than in others, but road making is easily the big construction problem of the year and, as intimated, what we now have before us is but the beginning of bigger things to come.

The tabulation of the amounts spent are to be spent by each state is as follows:

Alabama	$1,000,000
Arizona	6,250,000
Arkansas	4,297,398
California	20,000,000
Colorado	4,742,000
Connecticut	8,000,000
Delaware	8,528,000
Florida	8,000,000
Georgia	7,911,000
Idaho	2,100,000
Illinois	6,013,304
Indiana	12,000,000
Iowa	20,498,534
Kansas	8,000,000
Kentucky	3,500,000
Louisiana	2,000,000
Maine	1,630,000
Maryland	6,750,000
Massachusetts	6,000,000
Michigan	15,000,000
Minnesota	11,127,986
Mississippi	7,000,000
Missouri	5,413,079
Montana	6,300,000
Nebraska	2,005,000
Nevada	1,377,499
New Hampshire	1,630,000
New Jersey	6,500,000
New Mexico	4,000,000
New York	2,000,000
North Carolina	5,000,000
North Dakota	1,082,000
Ohio	13,321,500
Oklahoma	3,600,000
Oregon	8,000,000
Pennsylvania	8,780,000
Rhode Island	1,470,000
South Carolina	7,000,000
South Dakota	6,767,276
Tennessee	3,650,996
Texas	60,480,000
Utah	10,092,794
Vermont	1,797,650
Virginia	3,400,000
Washington	6,500,000
West Virginia	2,000,000
Wisconsin	3,200,000
Wyoming	6,500,000
	$352,216,016

NOTES ON FORCED DRAFT FIRING IN A PERIODIC KILN.*

R. K. Hursh, Urbana, Ill.

THE use of mechanical draft has developed rapidly in the operation of boiler and other furnaces and has, for many years, been in use to some extent in connection with kilns for burning clay products. Mechanical draft may be applied in two ways. In the induced draft system a reduced pressure is created in the furnace by means of a fan, drawing sufficient air through the fuel bed and over it to maintain combustion at the desired rate. Forced draft firing requires a pressure of air under the grate which forces a supply through the fuel bed.

In the induced draft system the fan must handle the products of combustion or flue gases which may be at a very high temperature. This involves severe working conditions for the fan and a large volume of gases must be handled. A large fan equipped with water-cooled bearings is therefore required. It is sometimes possible to cool the gases to a more moderate temperature before reaching the fan. In such case the size of the fan may be reduced and the severity of its working conditions is considerably lessened. This condition is found in boiler installations where economizers are used. It is not easy to appy such a system to kilns of the periodic type but it is in use in connection with continuous kilns.

In the forced draft system cold air is supplied under pressure beneath the grates and blows through the fuel bed. Since the air is cold, the volume to be handled is much less than in the case of the induction fan and the size of fan is considerably less. Moreover, the fan is not subjected to the severe duty of operating at high temperature and in contact with the sulphur fumes usually present in flue gases.

The stack is simply a device for creating induced draft and it may be entirely replaced by the induction fan, or an induction fan may be used merely to supplement the stack and increase the available draft. In the case of induced draft, whether by stack, by fan or by a combination of the two, the reduced pressure throughout the furnace, flues etc. tends to produce air leakage through cracks and crevices in walls and around furnace doors. This may often amount to an item of considerable importance by reason of the excess air passing through the furnace and increasing the heat losses in the flue gas. Especially is this the case where furnaces without doors are used, but a surprisingly large amount of air may leak through a small crevice in brickwork.

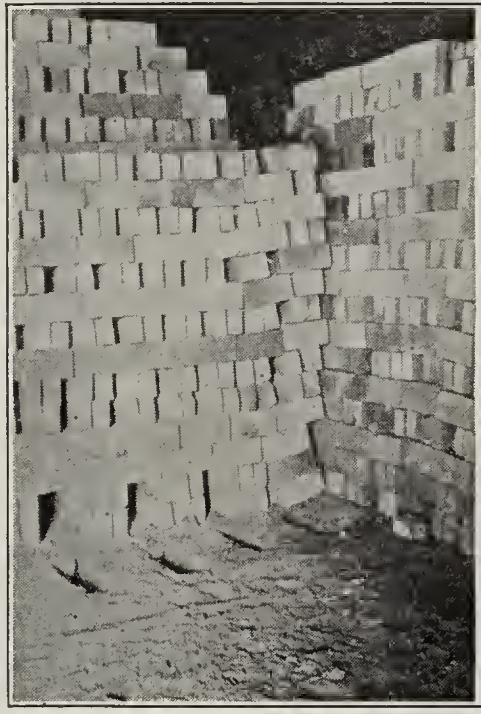


Fig. 1.

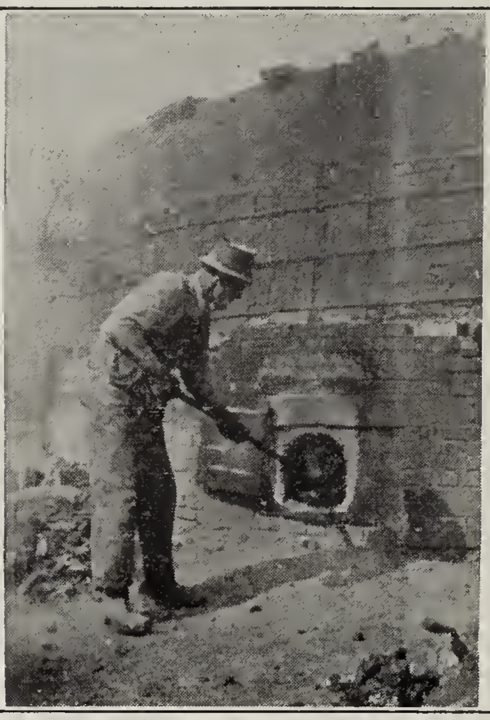


Fig. 2.

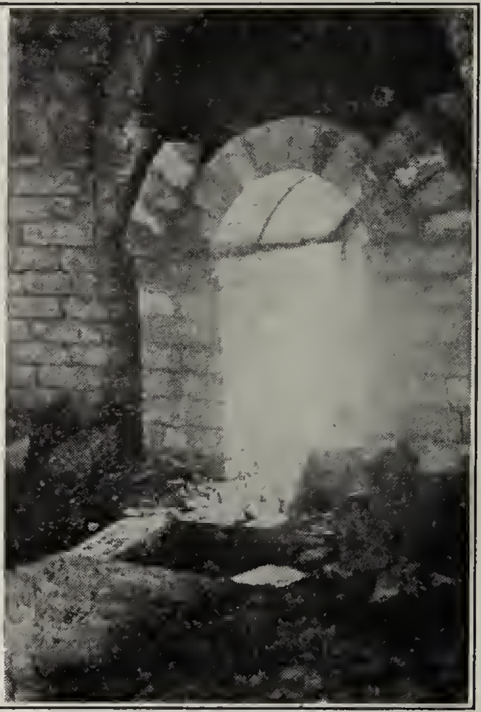


Fig. 3.

A purely forced draft system can seldom be practicably applied. It should be supplemented by a stack or an induction fan. In order to overcome the resistance of the fuel bed, the kiln setting, the flues, and to carry away the gases, a considerable amount of draft is required. If a pressure fan alone is used, the pressure in the kiln will be so great that smoke and flame will leak through cracks around the fire-box doors or be blown out whenever they are opened, greatly hindering the fireman. Perfectly tight doors would be required and it would be necessary to shut off the fan or to cut off the air supply to a fire-box at the time of firing.

In the combined forced and induced draft system the above difficulty is eliminated. The pressure fan may be used to overcome the fuel-bed resistance and to force air through the fire at the desired rate while the flue gases are carried away by the suction of a fan or a stack. In this case the pressure inside the kiln chamber will be practically neutral. There will be little or no tendency for smoke to blow out around the fire-box doors or for excess air to leak into the kiln. In an installation of this type the proper balance of draft is found when a little smoke will at times blow out through a hole at the bottom of the kiln wicket, while at other times there will be a slight suction into the kiln at this point

The advantages of ample draft in the early stages of firing are well recognized as permitting a more rapid and safer water-smoking by removal of the water vapor from the kiln as it is formed. Mechanical-draft is frequently of great value in this connection since it gives a positive and easily regulated supply of air from the time the kiln is started. With ample draft in the period of firing when the kiln is usually sluggish and hard to heat up, considerable time may be saved in burning. Mechanical draft, either forced or induced, overcomes the difficulty of the cold stack and the sluggish kiln.

It is noticeable in kilns fired with forced draft that the temperature difference between the top and the bottom of the kiln is likely to be less than in the same or similar kilns using natural draft. This may not necessarily be a special feature of forced draft application but is likely to be the case whenever an increased draft is available during the heating up. It is probably somewhat more noticeable in the case of forced draft, however, due to the smaller amount of excess air which may be passing through the kiln. It is also likely that the gases tend to travel more uniformly through the kiln and have less tendency to follow channels. This results in a more uniform heat effect over the whole of the kiln, as well as from top to bottom, and settle is more uniform. Likewise, the shrinkage of the ware during the early period of settle is taking place throughout the height of the setting rather than in the top only. In several kilns, to which forced draft had been applied, a much more uniform heat treatment from top to bottom of the ware was noted and the usual soft burned ware in the bottom courses was not apparent.

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*Paper read before National Brick Manufacturers' Association, Pittsburgh, Pa., February 7, 1919.

In view of the fact that the application of forced draft to periodic kilns has, in many cases, reduced both the time of firing and the fuel consumption, it was thought of interest to make a study of the combustion conditions and the heat distribution in a typical installation fo this sort. Considerable heat balance data has been obtained on a variety of kilns which affords a comparison with that found in this test.

The test was carried out on a round down-draft kiln, 26 feet in diameter, used for burning building brick. The floor system was of a very simple type, consisting of a single collecting flue across the diameter of the kiln perpendicular to the covered stack flue. A series of openings in the top of the collecting flue were fed from distributing flues built in the setting itself, as shown in Figure 1.

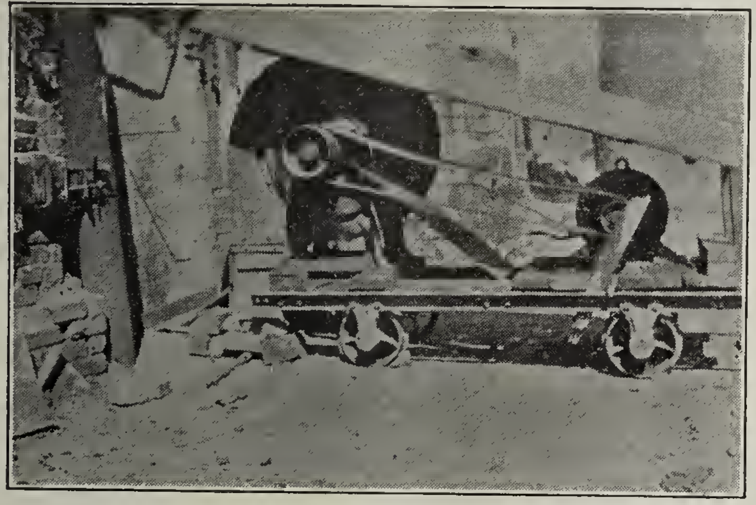


Fig. 4.

The kiln was equipped with eight fire-boxes, the grates consisting of perforated cast iron plates 12 x 24 x 1 inches in size and set at the level of the kiln floor. The perforations in the plates were ⅛ inch holes, spaced 1 inch on centers. Under the grate was an air chamber with an inlet 4 inches square from a 12 inch sewer pipe just outside the kiln wall. The opening to the fire-box, the type of door used and the method of firing with a long handled shovel are shown in Figure 2. In Figure 3 is shown the construction of this fire-box when replacing the old type used with stack draft alone.

The main, delivering air to the fire-boxes, surrounded the kiln just below ground and had an opening for fan connection in front of one of the kiln doors. The air was furnished at a pressure of 1¼ to 1¾ inches water gauge by a No. 30 Clarage fan, belt driven by a 5 H. P. motor. The fan outfit was set on a dryer car truck to permit its being moved from one kiln to another, as required. The placing of the fan and its connection to the air main are shown in Figure 4.

At the time the test was made, the usual method of firing at this plant included one day's watersmoking, followed by as rapid heating up as possible to the finish of the burn. Owing to the fact that the kiln contained a considerable number of wet brick, the firing during the test included two days of watersmoking. During this period the furnace doors were left open and each box was fired lightly at two hour intervals. When most of the moisture was gone, the firing intervals were reduced to one hour and the fire-box doors were closed when watersmoking was completed. During the third and fourth days of the burn the temperature was raised steadily to 1850° F., then soaked at this temperature for about thirty hours. The firing intervals during the heating up and soaking were twenty to thirty minutes, two or three small shovels of coal being fired each time. Fires were cleaned every twelve hours, by raking out the entire contents of the grate and starting a new fuel bed.

Run-of-mine coal of fairly high ash content was used for firing, with little difficulty from clinkering. Analysis of an average sample showed—Fixed carbon—37.39, Volatile matter—33.64, Moisture—9.73, Ash—19.24, Sulphur—3.07, Calorific value—10,027 B. T. U. per lb. of dry coal.

The average coal consumption for each twenty-four hour period of the burn is shown in Figure 5. It is to be noted that the fuel consumption per square foot of grate surface per hour is much higher than is obtained normally with the ordinary method of firing. The greater fuel burning capacity per unit grate area permits more rapid raising of the kiln temperature and allows the use of smaller grates than those required where the available draft at the furnace is less, as in stack draft installations of the usual type.

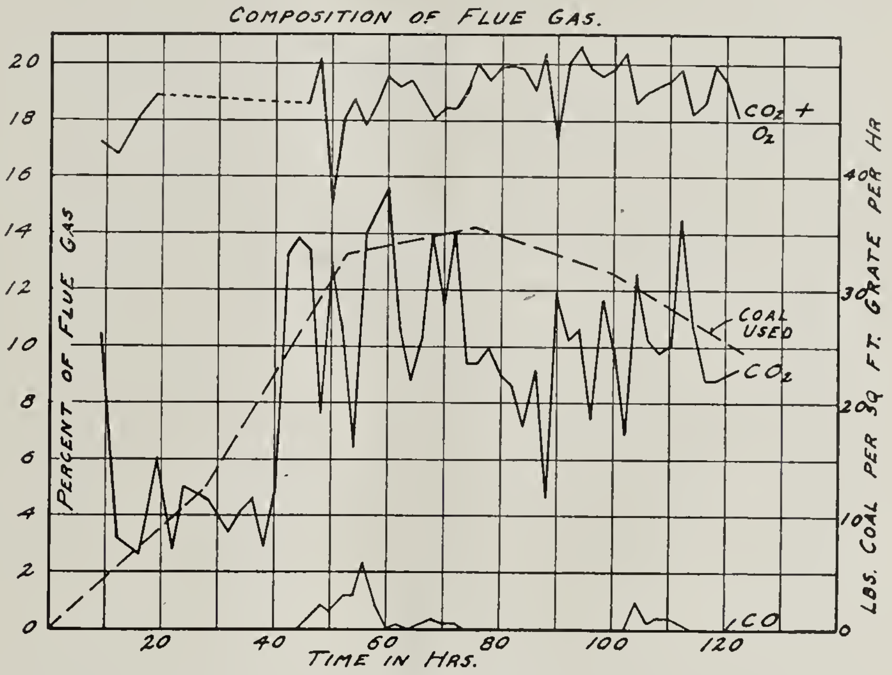


Fig. 5.

The composition of the flue gases, sampled in the stack flue at two hour intervals, each sample representing the average for a thirty minute period, is shown by curves in Figure 5. The large variations in the amount of carbon-dioxide in the gases is a little surprising in view of the short firing intervals and the fact that samples taken for analysis covered a period of time approximately equal to the firing period. The presence of carbonmonoxide in the gases indicates insufficient mixing of the incoming air with the combustible gases evolved from the coal on the grate. It is probable that a somewhat larger combustion space above the grate would remedy this to some extent. A better regulation of the air pressure under the grates by closer control of the fan outlet or inlet would permit more uniform combustion conditions to be maintained with variable rates of firing.

The rates of temperature rise in the kiln and in the stack flue are shown in Figure 6, as well as the draft reading at the fan outlet and in the stack flue. The lag in temperature rise in the bottom of the kiln during watersmoking and the rapid approach to uniformity of temperature from top to bottom during the heating up are well shown.

In Figure 7 is shown graphically the percentages of the various items of the heat balance for each twenty-four hour period and for the total burn. In the first period a large amount of heat is utilized in evaporating the water left in the brick. A considerable amount of evaporation is also carried on in the second period but in the latter stages of burning the amount of heat going into the ware becomes less and the losses in the hot flue gases and the general losses, mainly due to conduction of heat through the kiln walls and radiation from the surface, increase rapidly. The summation of the items for the burn as a whole show a somewhat larger amount of heat used by the ware than is the case in some previous tests of similar kilns using stack draft. However, the large amount of heat used for evaporation of water from the wet brick would account for most of this difference and it is not likely that a normal burn would show much difference.

The loss of heat in the flue gases is about normal for periodic kilns. It is likely that somewhat closer regulation of the forced draft air supply and better regulated firing might reduce this somewhat by decreasing the amount of excess air in the flue gases.

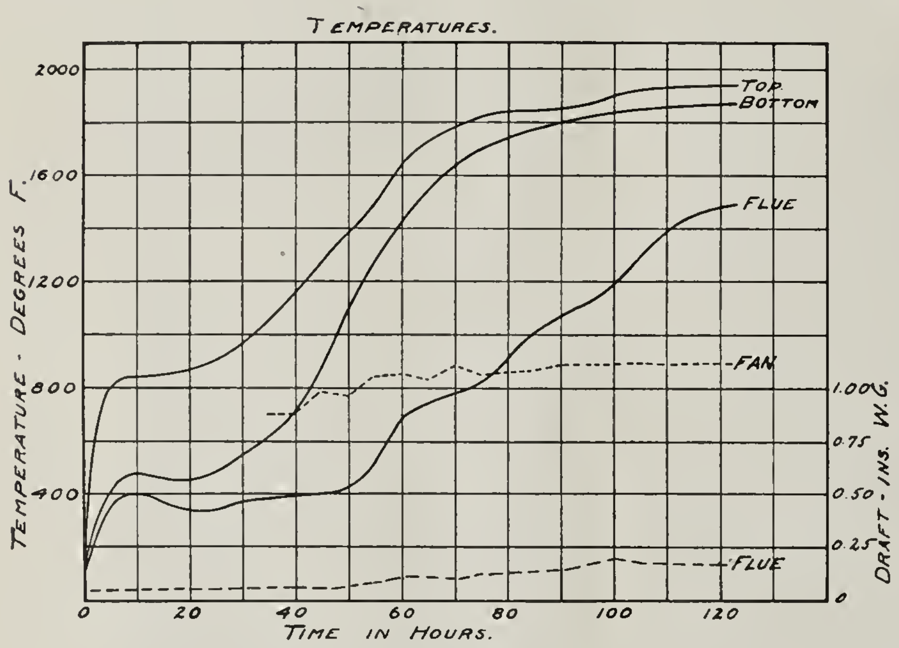


Fig. 6.

Number of brick set	66,000	
Weight of brick as set	200.5	T.
Weight of burned brick	162.5	T.
Weight of coal used	55,835	lbs.
Weight of coal per M brick	846	lbs.
Weight of coal per T burned ware	343.6	lbs.
Length of burn	123	hrs.
Maximum temperature (top of kiln)	1,940°	F.

The above data shows some items of interest in connection with the burn, especially the fuel consumption. It is somewhat below the average for this sort of ware and might have been reduced somewhat had the kiln been set with dry brick.

It is evident from the heat balance data that such saving of fuel as was made on this burn was due to the comparatively short duration rather than to a saving in any particular item of heat loss in the firing. It was possible, by reason of the greater draft available with the fan, to shorten the time considerably over that formerly required.

The experimental work from which the above data was taken was a part of the thesis work of H. H. Sortwell and B. F. Carter, to whom the writer desires to express his indebtedness.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

BUSINESS HAS IMPROVED during the past month faster than for any previous month since the war came so near blotting out the brick industry of this state. No matter where one goes in New Jersey the information is the same: Buildings of all sorts, both business buildings and dwellings, and many public structures are to be erected. Architects are busy with plans, building departments are busy investigating propositions and granting permits and contractors are busy getting ready for the active operations which will begin with another season. Apparently the disturbing features are fast passing away and if something could be done to reduce the labor costs a little no question exists of an immediate development in the building industry which would make it larger than ever before in this state. And the best feature about it is that the big cities, including Newark and Jersey City, are not alone in this new prosperity, but that all places, both large and small, are affected.

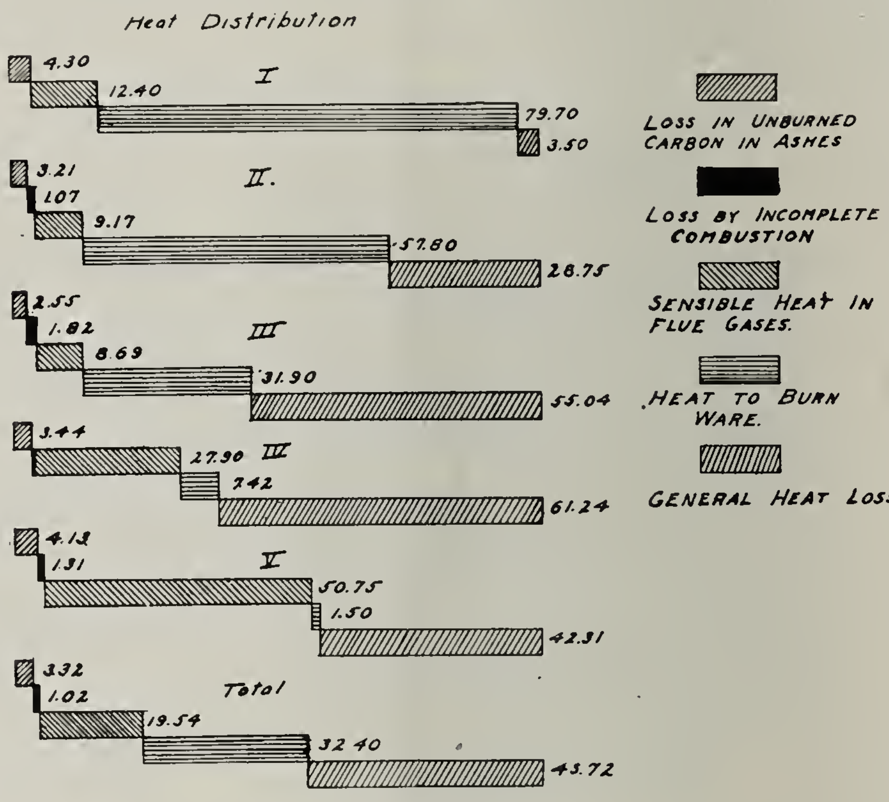


Fig. 7.

Prices are still high, judged by former standards. But it is about time that those who have buildings to erect, as well as others, should learn, or understand, that former standards have disappeared. The world has been changed and the change has wrought out a new scale of prices for everything. Old scales should be thrown away and the basis now in effect should be accepted as the one upon which all prices should be figured. It is these prices and these alone that count.

Newark is quoting common brick around $18, delivered on the job. Here and there as low as $17 has been paid, but most holders are higher. Jersey City wants $17 to $18 for common brick, delivered. It might be that a little higher prices could be obtained in some instances. Paterson is getting $16 on the job, and a few are held as low as $15.50. In some cases up as high as $18 has been paid. Passaic is getting around $17, New Brunswick is asking $15, Camden is getting $16. Perth Amboy, located in a brick-producing section, is getting around $15. Hackensack, another brick-producing center, is getting $15. Englewood wants $17, delivered on the job. Ridgewood is asking $17, delivered; Rutherford wants $17. In Hoboken the price is $16. Trenton is quoting around $15. These prices are substantially what the cities and towns of the state are all asking, and if the situation is properly understood, the cost will not seem heavy. The era of low prices for brick, judged by standards that prevailed fifteen years ago or more, has passed, and in its place has come an era when producers will get a fair figure for their product. Workmen want more and must have more, consequently prices have risen, compared with the pre-war days, when ignorant foreign labor was employed in some of the yards. A new time is here and consumers will have to pay new prices in order to get brick. That is the fact, and they might as well recognize it now as later.

Paterson is to expend $2,000,000 in the erection of new mills this coming year. Already the building inspector has granted permits for the erection of new structures and the remodeling of old ones approximating $1,750,000 in value, and numerous operations are projected which haven't yet reached the stage where plans are ready. It is the greatest development in the history of the city, with the exception of what followed the great fire fourteen years ago. In addition, the city is to spend one million dollars in new school houses during the next two years. The plans are now in preparation for one that is to cost a quarter of a million and a second series of plans will follow immediately which will provide for the expenditure of another quarter million, while a high school is to be built later to cost half a million. This doesn't take into account the many dwellings which are to be erected and the changes which are to be made in others.

While not all have their plans so well along that they can say definitely what is to be done, few New Jersey cities are going to do less and the larger ones like Newark and Jersey City are to do more. The building operations already under way, or provided for, in those cities will so far exceed anything in recent years that the cities themselves will be astonished at what is to result from present movements. Every city and town in New Jersey is underbuilt. But as soon as the building movement gains its full activity the situation developed will surprise all who haven't given the matter much thought. New Jersey is on the eve of building development which will exceed anything hitherto known. Along with the erection of new buildings and changes in old ones is going the development of a great many business firms and these will require enlarged structures, or new ones as well.

The improvement is bringing another change which is even more satisfactory. The unrest which has disturbed labor for some months, is disappearing. The country, this section of it particularly, is tired of strikes and disputes, and frowns upon anything of that character. The result is that the difficulties which have confronted employers of labor for months are disappearing and the unrest is passing into a more normal condition. It will not be long before this whole disturbance will be gone and all business will be functioning normally.

The Hackensack yards are still burning. Some have not opened this summer, but others have and despite the unfavorable situation that prevailed all through the earlier part of the season, they have done well. Not a load of brick has been shipped from these yards by either boat or by rail. Instead, delivery has been to local and nearby towns by motor. A fleet of trucks has run all summer from the Hackensack yards to Paterson, eight miles away, and brick has been delivered on the job without delay and as the builder wanted them. Those who have tried the plan are enthusiastic about it and will never return to the old way of shipping.

The Hackensack yards are situated disadvantageously, with reference to shipping. They are away from the railroad, but as long as the river could furnish transportation for the brick made they were satisfied, but when it became necessary to ship by rail they found that shipment was expensive, because so unhandy. Now the motor truck comes and supersedes all former methods of shipping and enables these yards more or less remote from other shipping facilities, to do the work as well as those close at hand. It is another illustration of the value of the motor truck and points the way to many others situated as disadvantageously as these yards with reference to rail terminals or side tracks.

Innumerable new dwellings are in process of erection in the district around New York, and a larger share of them are built of fire proofing or of burned clay in some form. It seems almost accurate to say that burned clay has superceded almost every other form of building material for dwellings. Here and there one sees a frame dwelling in process of erection, but the majority of burned clay structures is so great that it seems almost needless to speak of others.

Nathan H. Sloan, brick broker, of Paterson, says that business has picked up faster in the past month than it has any time since the war started. He has made a number of good sales and in addition has many inquiries for larger or smaller quantities. All sorts of brick are included and the high priced face brick and enameled brick are taken almost as frequently as the common grades. He has a good sale for fire brick, too, and has supplied brick for some arches where others have failed to find the proper brick for them.

E. M. Rodrock, of the E. M. Rodrock Company, in Paterson, reports business improving and a good trade developing in a number of different lines of burned clay. Mr. Rodrock deals in all varieties of building material and carries a large stock of all sorts of burned clay. He says that his trade now and the inquiries he gets exceed anything since before the war. He looks forward to a very active business the coming season. He says his assortment is good and he is ready to satisfy almost any demand that can be made upon him. His slogan is "Instant Delivery," and he succeeds in living up to his watchword. In fact, upon that watchword he has built his present business.

The railroad situation is a nightmare to the shippers of brick and the brokers who sell them. It is difficult to get brick through as promised. In fact, it would appear as though the railroads set aside coarse freight, regardless of shipping directions and requests and devote their attention wholly to other freight. Where the shipments are dependent upon the railroad the time has passed when any guarantee can be given. Few are in position to hurry the roads and they take their own time to deliver such freight as they choose when they choose. The motor truck partially solves the problem. It helps out the concerns who have nearby business, but when the business comes from afar, and when the burned clay products also come from afar, it is little consolation to know that the motor truck will deliver it when it finally arrives. The arrival is the thing and there they are helpless until the railroads are ready to make deliveries. Never have conditions been worse than they are now, and no relief is in sight. Brick men possess their souls in patience so far as possible and wait for the dawn of a better day.

A. L. B.

Honest Farmer.

Two piles of apples lay on the ground. One contained a large-sized and rosy selection; the fruit of the other was green and small.

"Large on the top, sir and small at the bottom?" inquired the new assistant of his master, as he prepared to fill a barrel.

"Certainly not!" required the farmer, virtuously. "Honesty is the best policy, my boy. Put the little apples at the top, and the large ones at the bottom."

The assistant complied. Hsi master was evidently as green as his greenest fruit.

"Is the barrel full, my lad?" asked the farmer.

"Yes," answered the assistant.

"Good," said the farmer. "Now turn it upside down and label it!"—London Tit-Bits.

REFRACTORIES

MAGNESITE IN REFRACTORY WORK.

FROM THE EXCERPTS of monthly reports on mineral investigation of the Bureau of Mines, Department of the Interior, we learn that in the interest of the development and use of American magnesite a bill has been introduced in Congress putting a light duty on imported magnesite and a considerably heavier duty on the importation of brick made of it. It is hoped that at least the refractory branch of the clayworking industry will help promote this legislation as conditions in domestic magnesite industry will remain somewhat unsettled until some protection is offered of this nature.

Some interesting information as to the relative quality of American magnesite was developed at a recent hearing before the Ways and Means Committee of Congress including the following taken from the excerpts mentioned:

Up to the outbreak of the war, practically all the dead-burned of calcined magnesite used in the United States came from Austria. Four companies imported in appreciable quantities, and the material came in in the form of dead-burned grain, which was admitted free of duty. The mineral imported for refractory purposes came from different parts of Austria. Austrian magnesite was first used in this country about 1888, and became the standard for steel, copper and other metallurgical furnaces where a strictly basic material was required up to the outbreak of the war. A typical analysis of Austrian dead-burned magnesite together with the Washington dead-burned material is as follows:

Analysis of Dead-Burned Magnesite.

	Austria	Washington
Silica (SiO_2)	2.50	6.40
Alumina (Al_2O_3)	.50	1.50
Iron Oxide (Fe_2O_3)	7.00	5.88
Lime (CaO)	2.75	2.30
Magnesia (MgO)	86.50	84.00
Loss on Ignition	.50	.50

The raw Austrian magnesite is the carbonate of magnesium in crystalline form, and contains iron in natural combination. It has been referred to in many written descriptions as breunnerite. The dead-burned grain may, therefore, be regarded as a natural product. The Washington material likewise occurs in the raw style in crystalline form resembling the Austrian closely except that the crystals are slightly different in size and shape and the iron content is not so high, running about 1 per cent. The Washington magnesite is calcined in rotary kilns by first grinding and screening to the proper degree of fineness, and added 2¼ per cent. of iron oxide in a finely divided condition. The calcination is performed at a high enough temperature to thoroughly fuse or sinter the iron oxide, which, combining with the magnesia, forms a homogeneous product which is supplied to the trade in grain form, and which is worked up into brick by the refractory manufacturers.

The Harbison-Walker Refractories Company, during the latter part of 1914, during all of 1915, and during part of 1916, imported nearly all of their magnesite from Greece in raw, or partially calcined state. The finishing process was performed at the different plants owned or leased by them for this purpose. In 1916, importations of Grecian magnesite were interfered with by the war to such an extent that it was impossible to import any of the Grecian mineral. From that time until the development of the Washington deposits, they depended upon a variety of sources, chiefly California and Canada, and produced the best material that they could with the available supplies. Washington magnesite, which occurs in very large bodies, then became the principal source of supply, and at first it was shipped East for calcining. Later, the plant of the Northwest Magnesite Company was completed and in the spring of 1918, the calcining was accomplished at that plant and consequently suspended at Eastern plants. This firm has been depending entirely upon the Washington deposits for their supply since the middle of 1918. During all of this period, and at the present time, a certain amount of California magnesite has been produced, calcined and shipped, but the greater bulk of the mineral used for refractory purposes has come from the Washington deposits.

The Washington magnesite, according to this firm, has been substituted for the Austrian for every purpose for which the Austrian was formerly used or sold, either in the manufacture of steel, copper or other metals, and no conclusive evidence has appeared that the Washington produce is inferior to the foreign. As a matter of fact, the testimony of some of the largest consumers of magnesite is to the effect that the Washington mineral, as now produced, is as good as the Austrian. Brick made by this firm have been made exclusively from the Washington magnesite since the middle of 1918, and during this period nearly 60,000 tons of magnesite in the form of dead-burned grain and brick have been used and marketed.

Magnesite in the Oxychloride Cement Industry.

In connection with the recent hearing on Magnesite before the Ways and Means Committee, the following interesting information on this mineral as used in the oxychloride cement industry was furnished by the New York Oxychloride Cement Manufacturers.

Beginning of the Industry.

The manufacture of oxychloride cement began in the United States about 20 years ago, but up to the last 6 or 8 years, it still remained in the experimental and development stages.

Uses of Oxychloride Cement.

When magnesite is calcined at a temperature of 1600° F. it produces caustic burned magnesite which reacts with peculiar phenomena with a solution of magnesium chloride, producing when in combination with fillers a tough, compact mass known as Oxychloride or Sorel cement. The resultant composition has strength sufficient to make a desirable flooring, and at the same time a compact, resilient and sanitary flooring which has extraordinary strength to withstand blows and rough wear, is tough enough to prevent the formation of cracks, and is impervious enough to withstand puncture. Unlike Portland cement, it is possible to saw, cut and insert screws into it. The product also possesses fire resistance and heat insulation. It has, therefore, been found useful in monolithic floors, in stucco and slabs, for insulation and pipe covering, for the decks of ships, the floors of freight and pullman cars, hospitals, etc. Its cost is slightly in excess of foundation cement, but well within the cost of other permanent floorings such as tile, etc.

Size and Ramifications of the Industry.

The manufacture of oxychloride cement consumes approximately 10 per cent of the magnesite ore used in this country. The number of manufacturers in the United States is approximately 200, employing under normal conditions from 5,000 to 10,000 men. The volume of business transacted amounts in value to more than ten million dollars annually. Because of the economic and unique character of the product, together with its suitability for a great variety of practical purposes, the growth of the plastic flooring industry under normal conditions of the building trades, has every prospect of being rapid, not only in the United States, but in Europe as well.

Former Sources of Supply.

Caustic burned magnesite, that is magnesite burned to the point where it contains 3 to 4 per cent carbon dioxide, which is the kind used in Oxychloride cement, was obtained from Greece and Venezuela, and to a minor extent, from Mexico before the war. Some of it came from California. Dead burned magnesite used in the refractory industries, as stated above, came principally from Austria, but the Austrian material on account of its high iron content, though useful in the steel industry, is undesirable in the Oxychloride industry on account of this content of iron oxide which colors it on calcination.

Pertinent Points for Brick Makers.

There are just two problems before the common brick industry, each of which should be comparatively easy of solution. One is to get the price, and the other is to exploit the product until more of it is used.

One feature of the building season's development seems to be a more extensive use of colored mortars in the laying of face brick, which in turn should make an increased demand for mortar colors.

The people who build brick homes are not moved to the purchase of this material because of its cheapness, but for the reason that it is the best. So it should pay to boost the quality rather than cut the price.

We rather expect to see quite an era of new equipment in the clayworking industry soon. So it is desired to express in advance the hope that in the rounds there will come a proper realization of the value of the raw material, and that a more general practice will obtain of listing at its proper value in the cost figures of doing business the raw material used and held in reserve.

Written for The Clay-Worker.

HEARD IN NEW ENGLAND.

PRICES ARE RUNNING HIGH all over New England as compared with the quotations of earlier days, but when the production costs are considered, together with the cost of everything else entering into manufacture and distribution, builders are coming to understand the situation. They are no longer talking high prices, but are endeavoring to get to work and do business—and this is exactly what is needed. New England is so badly underbuilt that in numerous centers literally hundreds of people are waiting for new houses. Factory construction is also developing very rapidly. In Connecticut, however, the war construction of factories was so great that plenty of manufacturing space is now available and not much factory construction is required, but that doesn't limit the erection of new houses, and much of that is going on.

Bridgeport, Connecticut, has some excellent community houses, perhaps as good as any that have been built in America. Seldom are any better built anywhere. They seem to embody the English idea, and no one has built a better community house than England. They are usually models for all other countries to follow. Bridgeport has constructed its houses in such a way that they are economically built. They are all of brick and the work is well done. By that it is meant that the buildings have some claims to architectural beauty. Generally these buildings are so plain and look so cheerless that they are rented only to those who cannot get anything else. But the Bridgeport houses are different and are much better than the average.

Prices of brick in Connecticut are variable. New Haven is getting around $20 for common building brick. Hartford is quoting from $18 to $20, the higher figure for selected stock. Meriden wants about $20 and a good deal of building is in progress there. Middletown is asking $20 to $21, though the latter figure is considered high and the sales of brick at lower figures has been heard. Danbury has asked as high as $21. Waterbury wants $20 to $21; Bridgeport is selling them at $18 to $20. These figures are representative of what it asked all over the state, though naturally local conditions make differences in quotations and in some localities these figures might not prevail. Movement is fair and has consumed the bulk of the product of the yards this season. Yard owners expect to improve their output next season, and are looking forward to a better business in all directions.

In Massachusetts conditions have been better during the present season than they were last, but they are by no means good yet and sales have not been up to hopes in all localities, though in others they have exceeded expectations. In Boston prices are quoted around $20. In Worcester it has been impossible to get brick below $20 most of the time, and even more a considerable part of the time. Springfield has quoted from $18 to $20, with few selling at the outside figure. Holyoke has asked from $17 to $19. Northampton has priced common brick as high as $18. Greenfield has quoted as high as $18, but less than that has prevailed most of the time. The Dyer plant in Greenfield has been closed all summer, and a considerable proportion of the brick wanted there has been shipped from elsewhere. Pittsfield has quoted as high as $20, Westfield has named $18, and Palmer has quoted about the same. The smaller centers have not been much different. In fact, the business has been done upon a small margin, but prices have seemed high when compared with those that formerly prevailed.

HIRAM.

OFFICIAL ANNOUNCEMENT.

Thirty-Fourth Annual Convention of the National Brick Manufacturers' Association to Be Held at Columbus, Ohio, February 16 to 21, 1920.

Joint Convention to Be Held With the Common Brick Manufacturers' Association of America and Other Affiliated Organizations.

A GREAT EDUCATIONAL CENTER is surely an ideal place for a meeting of an educational organization. Such a place is Columbus, and such an organization is the National Brick Manufacturers' Association. So it is peculiarly fitting for the thirty-fourth annual convention of the N. B. M. A., the "daddy of all clay organizations," to be held in Columbus, Ohio, the third week in February, 1920.

Columbus is, too, a great commercial and industrial center. Being the capital of the State, makes it a great social and political center. The latter point is made apparent by the accompanying letter of invitation from the chief executive of the State, Governor James W. Cox, who will extend a personal welcome to the N. B. M. A. during the convention. The worthy municipal executive, Mayor George J. Karb, also extends a cordial invitation, in which he is joined by the local clayworkers and educators, all of whom will gladly contribute to the success of the convention.

Columbus a Great Convention City.

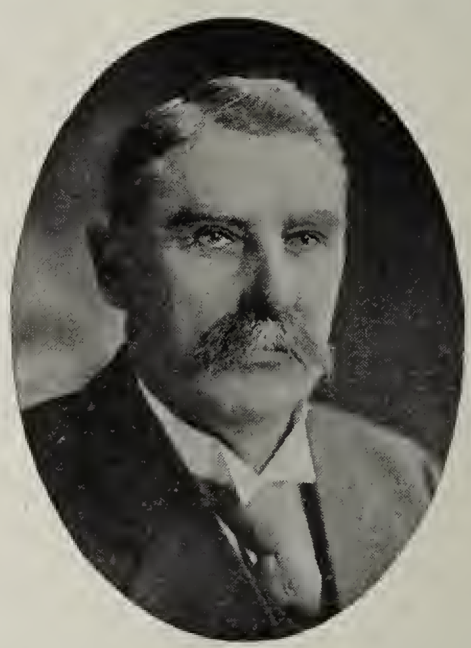
These facts, coupled with the splendid facilities of Columbus for the entertainment of visitors, make it a very desirable place of meeting for the N. B. M. A. and its affiliated organizations. This will be the third N. B. M. A. convention held in Columbus. The first was in February, 1899, and the second in February, 1908. Since the latter date the city has grown wonderfully. Among its recent achievements is a new Athletic Club, which ranks among the finest in the land, and a fine new hotel, the Deshler, a model modern hostelry, unsurpassed in equipment for the comfort and convenience of the traveling public.

Columbus is the home of the pioneer American School for Clayworkers, which, together with the Department of Ceramics at the Ohio State University, makes that great institution of learning of particular interest to all clayworkers.

In view of all these advantages offered by the Buckeye capital, it has been selected for the thirty-fourth annual convention to be held at the Deshler Hotel, February 16 to 21, 1920, and all affiliated organizations are most cordially invited to meet there during that week. Ample accommodations will be provided, affording every desired facility in the way of meeting rooms, etc.

Hotel Deshler Headquarters.

The populariiy of the Hotel Deshler among tourists is proof of excellent service and equipment. It was erected and outfitted at a cost exceeding $2,000,000, and its spaciousness, modernity, elegance and comfort aid in the entertainment of the public. The entire second floor of this hotel is so architecturally arranged that it may be used as one harmonious whole in entertainment of conventions, providing exhibit space, auditorium, committee rooms, etc. The Deshler is operated on the European plan, and the rates are reasonable, ranging from $2.50 up per guest, according to location, etc. Practically every guest room has a private bath and toilet. The minimum rate for a double room is $4.50. The dining room service is unsurpassed, and there is a quick service cafeteria and coffee shop that busy men find a great convenience.



J. W. Robb, President N. B. M. A., Clinton, Ind.

Naturally, the Deshler is very popular, and consequently early reservations are advised.

Meetings of Affiliated Organizations.

The Common Brick Manufacturers' Association will meet jointly with the N. B. M. A., holding board meetings, executive and open sessions Monday and Tuesday, as will the National Paving Brick Manufacturers' Association and the National Clay Machinery Association. The local sections of the American Ceramic Society, the common and face brick manufacturers and makers of drain tile, sewer pipe, hollow tile and terra cotta are invited to participate, thus insuring a representative gathering of clay products manufacturers.

Those desiring further information as to requisite of membership in the National Brick Manufacturers' Association, or any other detail of convention arrangements, are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
J. W. Robb, President.
Theo. A. Randall, Secretary.

COLUMBUS BIDS CLAYWORKERS COME AND OFFERS UNEXCELLED FACILITIES FOR A GREAT CONVENTION.

National Brick Manufacturers Assn.,
Indianapolis, Ind.

Dear Sirs:

Ohio's Capital City is most desirous of acting in the capacity of host to your Honorable Body (as also those of your "Auxiliary Associations") on the occasion of its 1920 Convention. She feels, too, that for many reasons—all good and sufficient—she might fairly hope for preferment.

Columbus, as you may know, is accepted as one of the great "Convention Cities" of the Country; and entertains annually, on an average, from two to three hundred Conventions—State and National. Thus it is, the city has chosen to provide itself with those things—more or less essential in convention affairs—if the Officers and Delegates are to be comfortably cared for, and their meetings held under pleasant auspices.

For instance: Columbus has many Hotels; and these conpurses of Delegates. Three of these possess, as a part of their equipment, commodious Convention Halls—with Committee Rooms attached—for which they make no charge when used for Convention purposes. If anything in excess of the capacity of these should be required, the City has others ranging in their ability to seat anywhere from 700 to 5,000—these, too, free of cost.

Columbus, as you know, is most centrally located; and is in touch with all the Trunk-lines of the country—having twenty-eight railroads (steam and electric) converging within her confines—which must ever extend the assurance of convenient ingress and egress to the visitor, and a consequent maximum attendance of Delegates.

Columbus, too, is famed for her hospitality to the "stranger within her gates;" and should it be the pleasure of your Contemplate, within their compass of entertainment, quality and prices in such variety as adjust themselves to the varying vention to come to us, as it is now being urgently invited, it can rely fully upon a courteous reception and genrous treatment. We beg you come.

Very sincerely yours,
The Columbus Conventions and Publicity Association.
John Y. Bassell, Manager.
Columbus, Ohio, September 24, 1919.

STATE OF OHIO
Executive Department.
Columbus, Sept. 29, 1919.

National Brick Manufacturers' Association,
Mr. Theodore A. Randall, Secretary,
Indianapolis, Ind.

Gentlemen:

It gives me pleasure to urge upon you the acceptance of the invitation extended by the Conventions and Publicity Association of Columbus to hold your next annual convention in the Capital City of Ohio.

The city of Columbus has been tried by all tests, having entertained some of the largest conventions which have ever been held in this country so successfully as to bring back loud words of praise long after the conventions had adjourned.

Let me assure you that the State of Ohio in connection with the city of Columbus will be glad to welcome you.

With every good wish, I am,

Very truly yours,
(Signed) JAMES M. COX.

Office of the Mayor.
Columbus, Ohio, Sept. 29, 1919.

Mr. Theo. A. Randall, Secy.,
National Brick Manufacturers' Assn.,
Indianapolis, Ind.

My Dear Sir:

In behalf of the citizenship of this capital city of the State of Ohio, I cordially and earnestly invite your great national organization to make this city their 1920 convention city.

I wish to assure them that in no city will they find greater hospitality than will be tendered them should we be so favored. I wish to assure you further that no stones will be left unturned in their desire and intent to make all guests to the city feel that their presence is most welcome and their happiness will be assured.

We will certainly be pleased and most highly honored should your organization accept this sincere invitation extended it.

Very sincerely,
(Signed) GEORGE J. KARB, Mayor.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

MANY YARDS along the Hudson River were idle this season. Running along the river by Haverstraw not long ago and looking down on the yards which occupy the flats next to the river, it could be seen that not more than half of the yards had opened this season and those which opened were not operated to anything like capacity. The help question was too difficult to solve early in the season and before it was possible to obtain sufficient help to operate the yards it was too late to do much with them. Furthermore, the fact that all proposed buildings were more or less held up by the conservatism of builders causing the situation to offer little or nothing to encourage the manufacturer to undertake liberal development. What may be done next season is a question to be answered then, but unless labor can be obtained, and unquestionably it will be scarce, it is quite likely that many of those yards where labor is a more important factor than it is in others will not open. If they do it will be for only partial operation.

In some yards labor saving machinery is to be installed, or has been placed in position already. Recognizing that more work must be done by machinery and less by hand, manufacturers are taking advantage of the dull year to put their yards in condition to handle whatever comes to them next year. Some are confident that next season will see a great demand for brick. But others are less sanguine and seem to think that trade will not much exceed what has been done the past year.

The Hudson River yards are hampered somewhat by shipping difficulties. The brick must go out for the long hauls by either water or train, and the same objections will prevail here that are influential elsewhere. Moreover, they had a strike of tugboat captains to contend with a considerable share of the summer. The demands were considered so unreasonable by some manufacturers that they banked their fires and ceased to make brick rather than pay the price these captains asked. Whether the transportation question can be settled satisfactorily by next season remains to be seen. The Hudson River manufacturer cannot employ motor trucks as liberally as some others for his shipments are largely to New York City, and that is too far for the motor to operate economically. So he must resort to train shipment, with all its delays and its increasing expense, due to high freight rates. The situation is not promising to the manufacturer of brick along the Hudson River and therefore the situation for next season is problematical. That it will be better, all agree, but how much better no one can say.

BURTON.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XLII.

Kiln Arrangement.

A FACTORY should be designed so that there will be a continuous forward movement from the clay supply to the car loaded with finished ware. This does not mean that the operation must be strung out in a line, quite the contrary, but it does mean that the product shall not cross itself at any point and thus interfere with the general forward movement.

The original ring kiln was annular (Fig. 158) and decidedly awkward for the movement of ware which can be most economically moved in straight lines and right turns.

These early kilns were probably filled and emptied by means of wheelbarrows, or perhaps the ware was carried in and out by hand. A circular track could be put around the kiln with a turntable opposite each doorway, or better a circular transfer track with a turntable car, but with any arrangement the kiln is not adapted to modern methods.

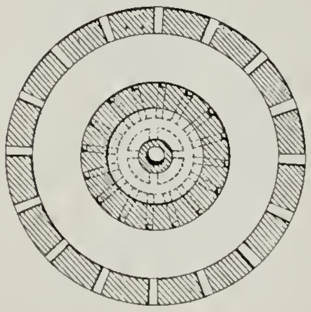


Fig. 158.

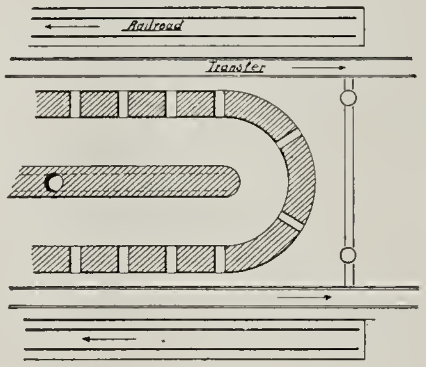


Fig. 159.

The plan was changed to an oblong shape (Fig. 159) which is an improvement but still there is more or less interference in the setting and unloading since the ware must come out the same doorway through which it is taken in and the setting and unloading operations are not far apart. This double operation on the same side of the kiln is complicated by the fact that the transfer tracks for green ware are slightly depressed and the loading tracks for the finished ware deeply depressed. One or the other must be crossed by the moving ware and there are frequent delays and numerous minor accidents.

The final and satisfactory plan (Fig. 160) has the tunnels separated and the ware enters through the inner doorways and is taken out through the outer doorways.

The early compartment kilns (Fig. 161) have the same difficulty as the ring kilns shown in Fig. 159, and to overcome this, particularly where it was impractical to have a spur track on each side of the kiln, so called semi-continuous kilns were built (Fig. 162) and the operation became continuous by means of a return flue connecting the ends of the kiln. It is practical to build a kiln with ten or even twelve compartments and get satisfactory operation through such a return flue.

It is but an extension of the semi-continuous kiln to build a parallel duplicate battery of compartments, connecting the two batteries of compartments by cross over flues and thus get the fully continuous kiln as shown in the dotted lines in Fig. 162, which gives the same yard arrangement as Fig. 160.

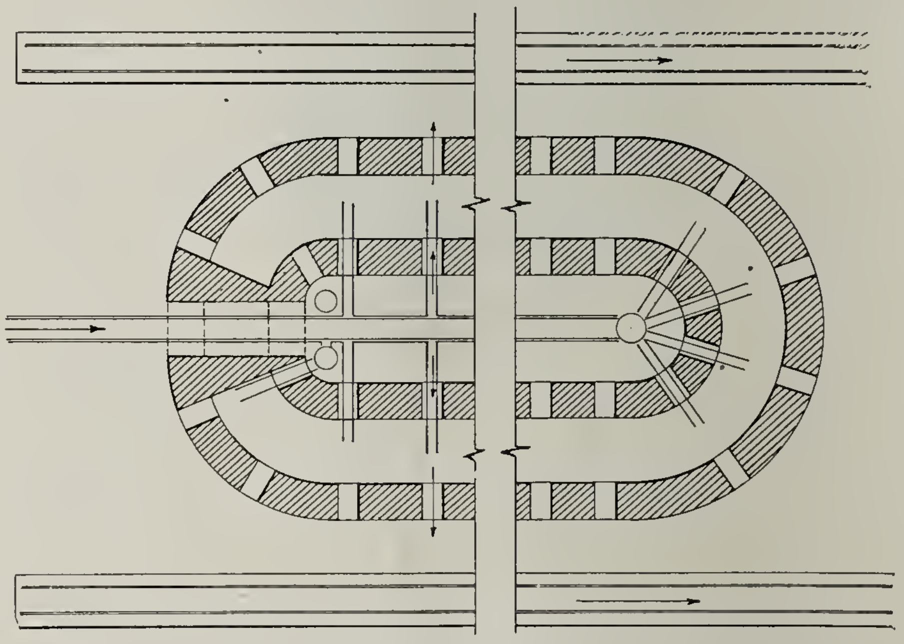


Fig. 160.

The Zig-Zag kiln illustrated in Fig. 140 has a large part of the ware coming out the same doorway through which it entered, but a single battery kiln with a return flue may be built as shown in Fig. 163. Such a kiln develops a very long tunnel in a comparatively short space—in other words a compact kiln and factory arrangement.

Producer Gas Economizer Kilns.

We do not know when producer gas was first used in this country in the production of clay wares. At Mt. Savage, Md., there was in operation in the early eighties, and up to within a few years ago, a tunnel kiln fired with producer gas.

The producer was built on a car and traveled forward as the fires progressed. It was scarcely more than a large portable box furnace, without, it is our recollection either steam or air pressure, in which the combustion was very imperfect from either the standpoint of complete combustion or producer gas development, but being movable and at all times in close touch with the burning compartment, thus getting full benefit of the sensible heat in the combustion gases, it was not important that a high grade gas be developed.

Producer gas operation in foreign countries was much earlier than in this country. Mendheim developed a producer gas kiln and put it in operation in 1867. The first kiln was very simple. If we were to take the kiln illustrated in Fig. 150 and introduce a gas flue under or in front of the division wall below the kiln floor level, with ports in the crown of this flue to mate with the hot air ports in the division wall, and build a bag wall in front of the division wall, we will have the first type of producer gas compartment kiln.

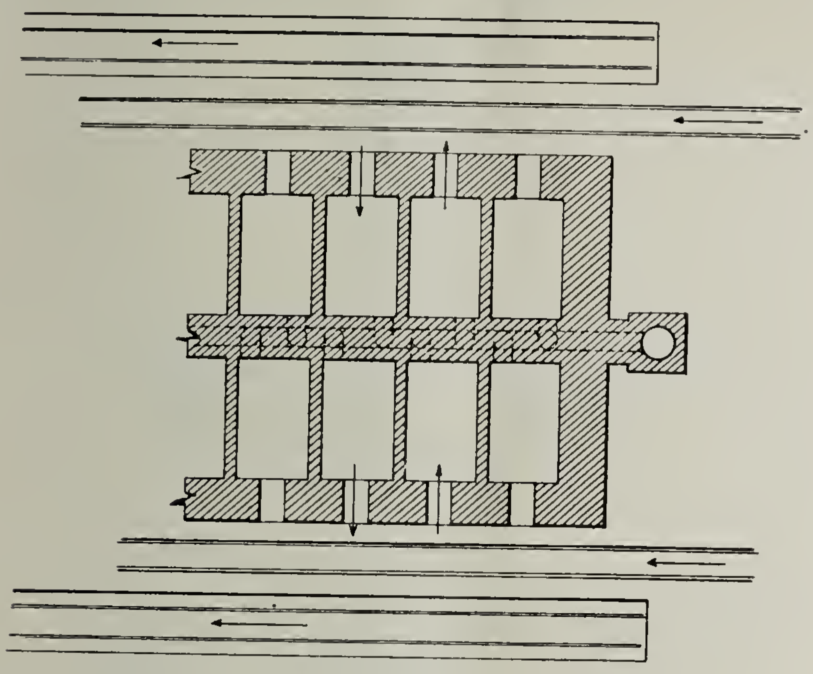


Fig. 161.

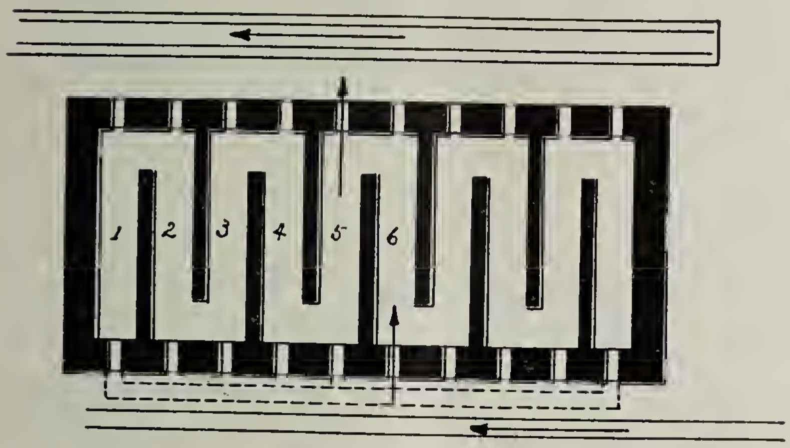


Fig. 163.

The early introduction of producer gas was equally simple, and in this operation it is doubtful whether we have progressed any.

In the early installation a series of cross flues carry the gas from the main gas flue outside the kiln wall to and under the tunnel floor and ports in the top of these flues corresponding to the ordinary feed holes in the kiln crown deliver the gas into the kiln tunnel. As the setting of the ware progresses, each gas port is converted into a vertical flue to the top of the setting by the use of perforated clay pipes closed at the top. The combustion of the gas jets from the pipes is completed by the hot air coming forward through the cooling ware in the tunnel.

This is a German method described by Schmatolla.

Bock shows the same method except that the gas is introduced from above through the feed holes.

An American method shown in Fig. 143 and described in connection therewith introduces the gas through a series of ports in the kiln crown from side wall to side wall. A drop brick or baffle in front of each port serves to spread the gas and air. The heat is forced to the bottom of the kiln as shown and described.

The original Mendheim compartment kiln, which has been repeatedly illustrated and described, carries the air forward under the division wall and across the compartment in a series of parallel flues. Between these are gas flues supplied with gas from under cross flues connecting with outside main gas flue. The gas and air are brought together through small openings in the kiln floor. The firing is over all parts of the kiln floor and in direct contact with the ware resulting in overburned ware in the bottom and underburned ware on top. This type of kiln has been superseded by the later and more satisfactory down draft types of kilns. Such a later kiln is illustrated in Fig. 164, section, and Fig. 165 view plan. The gas is delivered around the kiln in underground flues, and cross flues under kiln floor deliver the gas to ports in the bottom of the bags. The hot air is brought forward from the cooling compartments through underfloor flues corresponding with the gas ports. The draft connection is at the floor level in the corner of each compartment.

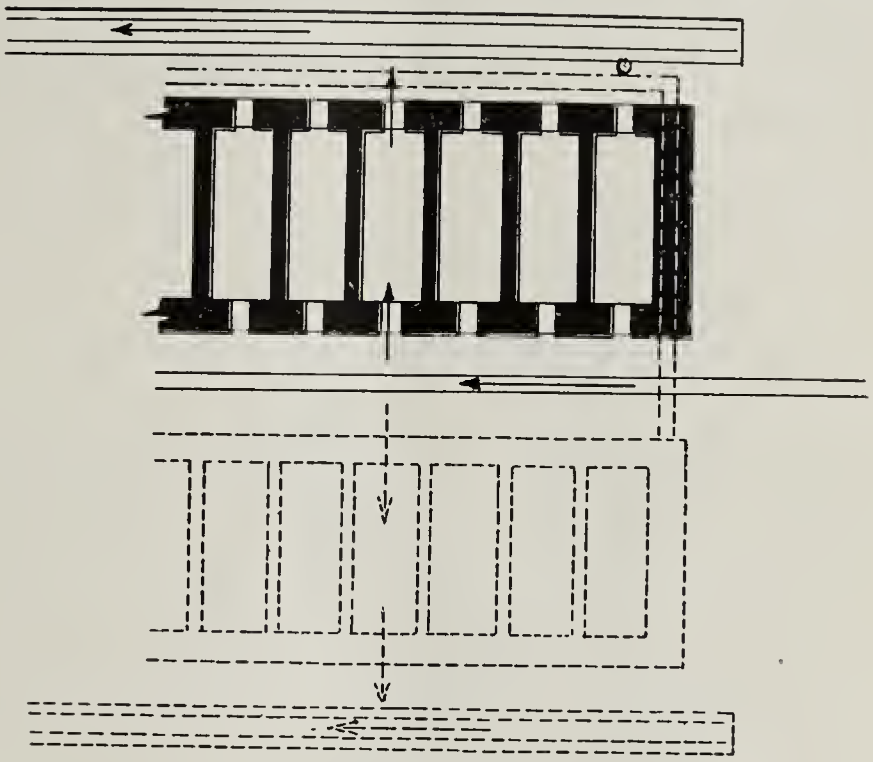


Fig. 162.

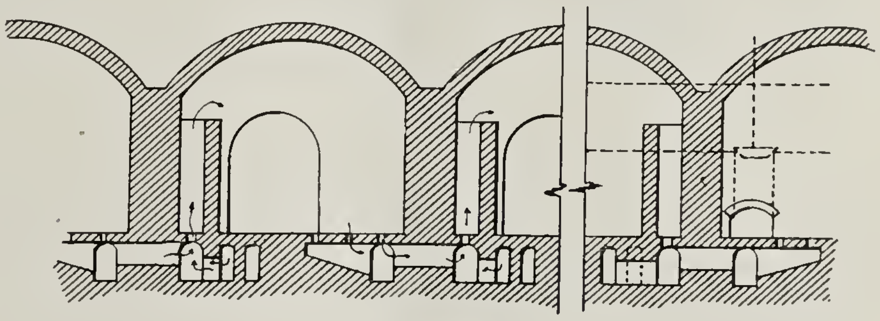


Fig. 164.

The Dunnachie, a Scotch kiln, Fig. 166, had three installations in this country in 1891; one, of two kilns, in Pittsburgh, Pa. and one in Portsmouth, O., for fire bricks, and one in Perth Amboy, N. J., for terra cotta, but all of them have long since been dismantled. The gas was introduced through a single flue across each compartment, instead of two flues as in the previously described kiln. There was no combustion bag, and instead of four gas ports there were a series of small ports in the kiln floor immediately in front of the division wall. The air for combustion was collected behind the division wall as in Fig. 164 with the difference that the transverse flue was under the division wall and had two damper controlled ports through which the air was delivered into an upper division wall transverse flue from which at the floor level were a series of ports corresponding with the gas ports. The air entered horizontally, and projecting into each stream of air, there was a vertical jet of gas from below. The ware was set away from the division wall to form a combustion space equivalent to a bag space. The illustration and description applies to the kiln as introduced into this country in 1891 and we do not know what changes and improvements may have been made in the kiln up to date, but so far as we know the three kilns mentioned were the only ones ever tried out in this country.

The Youngren (English) kilns, illustrated in Fig. 167, longitudinal section, and Fig. 168, cross section, introduced into this country a number of years ago marks the beginning of successful operation of producer gas fired compartment economizer kilns. Whatever the merit of a foreign kiln it requires time, patience, ability and money to adapt it to American conditions. We took English and German plans worked out for capacities of 30,000 to 60,000 bricks per week and simply enlarged them to get similar outputs per day, and the result in most instances were disastrous.

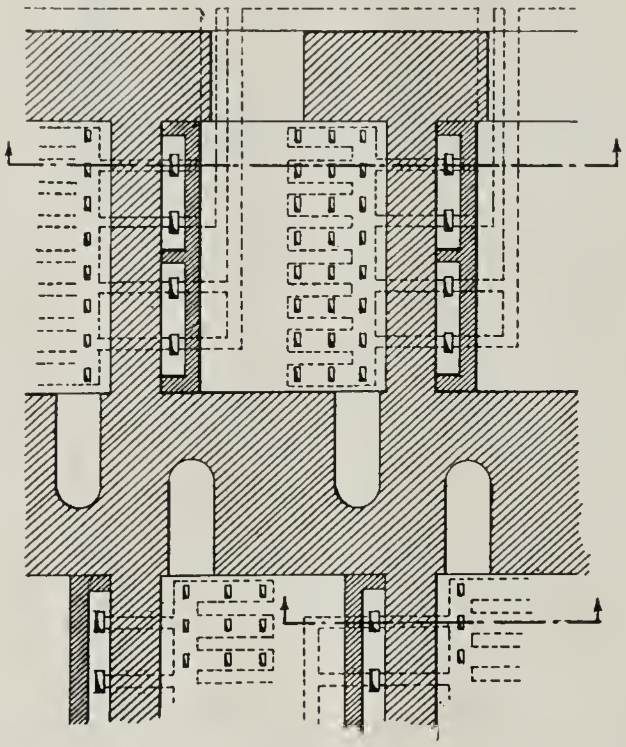


Fig. 165.

Mr. Youngren's unbounded faith in his kiln, his recognition and admission of its faults, his ability to overcome such faults, and his untiring energy in presenting the kiln to American clayworkers have won for the kiln the prominent position it holds today.

The number of kilns of the Youngren type which have been built in this country has given opportunity to develop the faults and correct them in so far as the type will permit and to bring the kiln to its highest efficiency.

The kiln has been improved not only by those promoting it but by those operating it and at the present time there are more installations of Youngren kilns under several names than any other compartment continuous kiln. A number of the designers of compartment kilns on the market have been operators of Youngren kilns and their kilns are extensions of and improvements on the Youngren kiln. The promoters of the Youngren kiln have developed new plans which are patented yet the ground work of these new kilns must be credited to Youngren although they must be counted as improvements and not as infringements. The most marked advance is in the double fired type.

The Youngren kiln is illustrated in Fig. 167, section, and Fig. 168, section of the division wall. The gas is carried through a pipe on the kiln wall or a flue within the kiln wall, and delivered to cross flues between the kiln arches below the kiln pavement through a goose neck connection or by means of a valve. The position of the gas flue will depend upon whether the kiln is a single battery of compartments, (semi-continuous), a double battery in a single unit, or a double battery in two units. In the modern gas fired kiln we must have, (1) a main draft flue the full length of the kiln and extending to the draft fan, (2) cross draft flues for each compartment, (3) a main flue, (4) cross draft flues to each compartment, (5) an advanced heating flue, (6) cross-over flues at each end connecting the batteries, or a return flue connecting the ends of a single battery. The double unit type is particularly complicated in that there must be two cross-over flues at each end—one connecting the compartments and one continuing the advanced heating flue. Such a multiplicity of flues requires varied arrangements to cover the several modifications of the modern kiln.

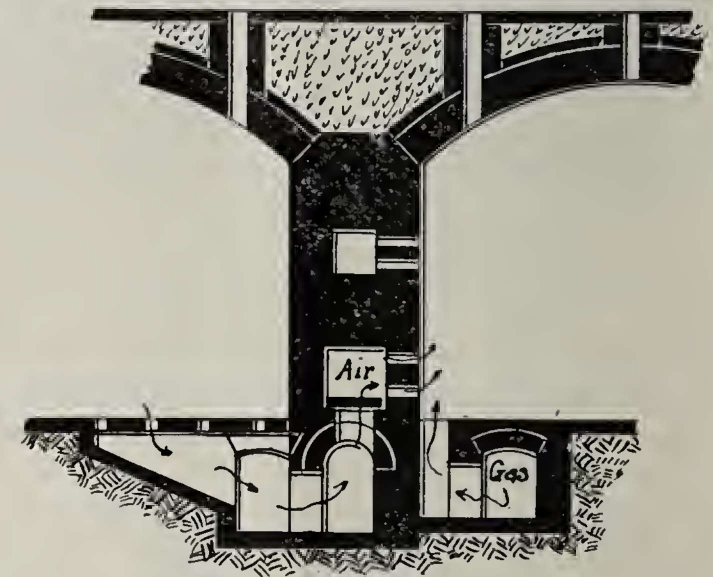


Fig. 166.

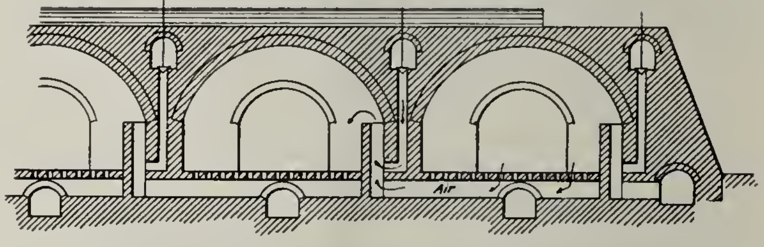


Fig. 167.

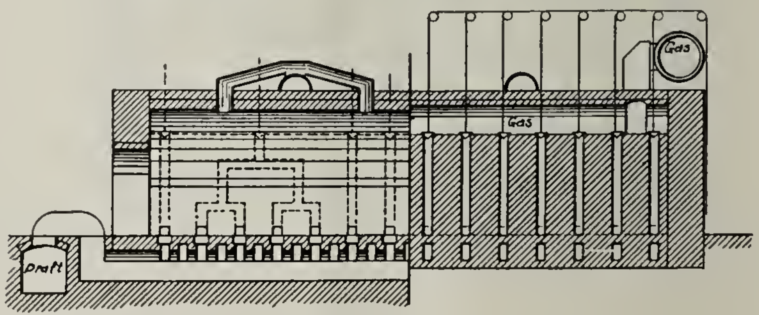


Fig. 168.

In the Youngren kiln, the flues delivering the gas from the main gas flue to the several compartments are centered in the spandrels of the crown arches. From the bottom of these flues are down-take flues in the division walls with ports into the bags at the base. Each of these individual gas flues is controlled by a valve. The original Youngren kiln in order to reduce the number of control valves branched the individual gas flues so that each supplied four ports, or in other words, four fires, as shown on the left of the sectional drawing Fig. 168. The modern kiln uses individual straight flues for each fire, as shown in the illustration, and the reason for this is evident to any one who has had experience in the use of producer gas. It is doubtful whether we should consider the modern kiln as a Youngren kiln. The kiln has been modified and improved and such improvements covered by patents, some of which are recent (1918).

The air from the cooling compartments, in the original plan, is drawn down through the ware, through a perforated floor, into parallel collecting flues leading forward through the division wall into the base of the bag thus delivering the hot air below the gas port.

A question discussed by engineers is whether the gas should be below the air, or vice versa. It is generally conceded that the lighter fluid should be underneath. The maximum flow of a gas in a vertical flue is in the center. If the lighter gas enters the flue above the heavier it will pre-empt the center of the flue and the heavier gas will be drawn up as an envelope of the lighter gas. On the other hand, if the lighter gas is below the heavier, it will because of its greater force, overtake the heavier gas and crowd it aside to get into the path of least resistance which is the center of the flue. In this way there is a more intimate mixture of gas and air.

It is generally assumed that gas is lighter than air and consequently should be under the air in a combustion operation. At 62 deg. F. air weighs .075 pound per cubic foot and producer gas about .065 pound. If the air enters at 1,500 deg. F. and the gas at 1,000 deg. the relative weights are .0196 and .0216—the air being the lighter and theoretically should be under the gas. It is the author's opinion that it makes little or no difference, nd one might present arguments favorable to putting the heavier gas under the lighter.

For example, complete combustion at the entry ports is not desirable because it generates an intense heat at those points and it is difficult to get the heat over into the kiln. In many instances it is desirable to carry the heat in part potentially from the furnace to the ware and complete the development in contact with the ware.

The modern kiln developed from the Youngren, but no longer the Youngren, is a marked advance over the kiln as shown in Fig. 167. In that illustration it is seen that the hot air or gas passes from one compartment into the next, and if it were desired it would be practical to have fully perforated floors.

In one recent plan the under floor collecting flues are so arranged that air from cooling compartments may be delivered to at least two burning compartments, and the products of combustion are carried to compartments ahead of the burning compartments so as not to interfere with the combustion in the second burning compartment. The arrangement is quite simple. Assume six compartments—one had two cooling, three and four burning, and five and six heating up. The hot air from compartment one is carried in an under floor blind flue and delivered at the gas ports in three and similarly the hot air from two is delivered to four, while the products of combustion from three and four are delivered respectively into five and six. A plan is also worked out so that air from one cooling compartment may be divided and delivered into two burning compartments without any interference of the combustion gases.

A doubled fired kiln is developed without changing the gas delivery of the Youngren kiln by simply placing the gas ports alternately on opposite sides of the division wall, with bag walls on each side. The under floor collecting flues are arranged to deliver air to the several bags.

The latest arrangement departs materially from the Youngren kiln. In fact, one might say that nothing remains except the position of the gas port and the method of delivering the air in the base of the bag below the gas port. This, however, is an incontestible feature of the Youngren kiln.

The gas main is now outside the kiln wall and under ground. A series of cross flues, corresponding to the number of gas ports, adjacent to and parallel with the sides of the division walls, underground, in fact below the level of the underfloor flues, with short right turns to the centers of the division walls and up-takes to the gas ports, deliver the gas to the ports. This method of delivering the gas to the kiln is used in Mendheim's kiln, Fig. 165, in the Dunnachie kiln, Fig. 166, and as will be seen in the Richardson kiln.

The chief difference and the vital factor in each kiln is the method of getting the air and gas together at the point of combustion. One may consider the air and gas port as a burner, and it is in the burner that the several kilns mentioned materially differ. In fact, the validity of the patents largely depends upon the burner.

The advantages of a double fired kiln are: (1) Progressive equal heating of the division walls which will prevent, or measurably reduce, the drawing over tendency illustrated in Fig. 152. (2) It insures more uniform burns.

(To be Continued.)

SOME BRICK AND LUMBER FIGURES.

J. T. Howington, manager of the Coral Ridge Clay Products Co., at Louisville, Ky., who carries an active man-size brain as well as a man's avoirdupois, has gotten into the game of comparative figures of wall cost in home construction, and he makes a noise that sounds mighty good to brick boosters.

By research among contractors in his own home town he has developed a table of figures of the comparative cost per hundred square feet of wall surface for construction that looks considerably different from the figures given out by the lumber folks up in Chicago, a while back. He figures the actual cost of various types of walls, including a typical frame wall with three coats of paint outside and plastered inside. The figures are as follows.

Frame wall	$44.89
Common brick eight-inch wall	44.81
Hollow tile eight-inch stucco outside	40.85
Frame wall and face brick veneer	57.17
Hollow tile, face brick veneer	52.56

It will be noticed by the above figures that the common brick wall 8 inches, of two brick thickness, in Louisville costs a shade less than a frame wall. Now, no matter what a man may prefer in the way of face brick or outside finish to his home, there is no getting away from the outstanding fact here, which is that a common brick wall of this thickness is superior both in appearance, durability and all the other qualities involved to a frame wall. It is enough superior that one may well pay premium in first cost to secure it. With the first cost actually lower there ought to be big doings in the use of brick and tile in the home building during the next years, including every type of building from the modest cottage to the stately mansion.

This is a set of figures which makes us feel good. If some of the rest of you have something equally good send it in for this is the kind of thing that will help keep enthusiasm alive and boost the industry.

Put the Build-with-Brick thought into the mind of every prospective home builder.

THE TRADE QUIZ BOX

Many readers of The Clay-Worker are wont to ask the editor for information on various matters pertaining to the brick and tile business. Usually such questions are answered by letter on the theory that the party asking the question is the only one particularly concerned, but many times the queries are of a general character and cover points in the trade in which the general reader may be interested, so we again inaugurate a Trade Quiz Box. Under this head, questions and answers will be given and any reader who can give further particulars in response to any particular query, or desires information on any phase of the business, is invited to make use of this department.

CLAY CONDUITS.

Question—Can you tell us whether or not clay conduits are still an item of importance in the clayworking industry?

Answer—Yes, conduits are an item in clay products, but because this item has seldom been set forth separately in the statistics of the industry its progress is difficult to follow. During the year 1917 the total of clay conduits reported was $1,227,668.

DRAIN TILE PRODUCTION.

Question—Somewhere, somehow I get the impression that the production and use of drain tile has fallen off some of late years. Is this a fact, and if so, what was the peak period in production and consumption?—A. B.

Answer—Properly speaking the banner year in drain tile was in 1910, when the total production went to $10,389,822. The year 1917 showed a total production of $11,008,163, which though partly accounted for by increased value, nevertheless indicates that this product is again making up for past losses. Moreover, if those big land reclamation ideas go through there should be quite a boom in drain tile during the next few years.

MACHINE FOR GRINDING BULL-NOSE BRICK.

Question: We have an order for 150,000 to 200,000 Bull-Nose brick. Can you tell us if there is a machine with which we could cut or grind burned brick to the proper shape? GEORGIA.

Answer: There is no burned brick cutting machine, in the sense that the brick can be put in the machine and come out the desired shape. Special shapes in burned bricks are cut by grinding on a carborumdum wheel, but the cost is prohibitive for a simple shape such as mentioned in such quantity. Another object to a shape such as a "Bullnose" is that the ground surface has not the finish of machine made brick. By "Bullnose" assume that the round cornered jamb brick is meant, as that is the shape that is ordinarily known as "Bullnose."

KNIVES FOR PUG MILLS.

Question: Are broad knives desireable for pugmill?

Answer: The value and efficiency of a pugmill depend upon its size and upon the arrangement of the knives. If too small, and specially if too short, the mill will not mix the clay sufficiently, and if the knives are incorrect in shape, or are badly arranged, the clay will emerge without being homogeneous. The older forms of pugmills are inefficient, as the blades are too small to be of much service and the amount of kneading and mixing which occurs is comparatively small. Broader knives, which would act better, require more power than other knives but make up in the gain in effectiveness.

KILN BUILDING.

Question: I am becoming interested in the manufacture of brick, and would like to ask if you can furnish complete specifications for the erection of an old time Dutch kiln? Also please advise me where there is a recent treatise in book form on the erection of kilns and the general management of a brick plant, and where it may be obtained, the cost, etc.—Virginia.

Answer: A full description of the old time Dutch kiln will be found in the June and July, 1918, issues of The Clay-Worker. The best treatise on erection of kilns, and burning of clay wares is contained in the series of articles by Ellis Lovejoy which have been running in The Clay-Worker for the past three years. Same is now drawing to a close, and will appear in book form in the very near future. Would also refer you to Lovejoy's book "Economies of Brickyard Construction and Operation," the price of which is $1.00.

SIZE PIPE FOR DRYERS.

Question: We expect to put in a small drier soon for our soft mud brick plant, and not having had any experience in erecting or operating a dry house, we are appealing to you for help.

Our plans are for a steam pipe rack drier, with a daily capacity of 16,000 brick, same to be dried in twelve hours, using a cable conveyor system from machine to dry house and cars to transfer the dried brick to the kilns.

It will take about 15,000 feet of pipe, or 7,500 feet on each side of the cable conveyor, and if these pipe racks are placed ten inches apart, it would give us ten racks of 800 bricks each on each side of cable.

(1) and (2) What size pipe should be used, ¾ inch or 1 inch? What horse power boiler will be required to furnish steam to dry 16,000 brick in twelve hours?

(3) What fall will be necessary to give pipe in 112 feet, which will be the length of pipe racks?

(4) We expect to use wooden pallets on the pipes at first, and buy steel pallets later. Do you think it practical?

(5) Is ten inches far enough apart between the pipe racks, to allow getting the pallets in and out freely?

(6) Expect to use six pipes to the rack and space them so that there will be a pipe under each brick. Do you think that many pipe will be more than is necessary to dry the brick in twelve hours?—Mississippi.

Answer: (1) One inch is the customary size piping used in rack dryers, and one should not use smaller pipe than this on account of stiffness and to insure sufficient radiating surface.

(2) The methods of figuring the heat derived from the piping is given in "Drying Clay Wares," pages 82 to 85. If we assume the temperature of the steam to be 200 degrees dryer room temperature 100 degrees, we have a difference of 100 degrees.

The radiation per foot of surface per hour for the above temperature difference figures 103 B. T. U., and the convection 175 B. T. U., making a total of 275 B. T. U. per foot of surface per hour. Fifteen thousand feet of one inch pipe will have 5,000 square feet of radiating surface, and the total B. T. U. given off will be 1,375,000. The latent heat in steam is 970 B. T. U. per pound, and the above volume of heat will represent 1,418 pounds of steam per hour, and on the basis of 30 pounds of steam per horse power the power will be 47. This gives one an approximation of the power required. The temperature difference may be greater than we have estimated or perhaps less and the power required will be correspondingly higher or lower. It probably will be lower instead of higher because the convection factor which we have used in our estimate will be a minimum in this type of dryer.

(3) The required fall is only that necessary to drain the piping perfectly, taking into consideration any sagging in the pipes.

(4) The use of wooden pallets is practical, but not to be recommended. The wood pallets are poor heat conductors, and then it is a question what the fire insurance companies will say to the use of pine pallets on steam pipes.

(5) Ten inches gives ample space to freely put in and remove the pallets of bricks.

(6) It is customary to use five pipes in each rack which spaces them from 6 to 7 inches apart.

(7) To get the highest efficiency there should be a vacuum pump to remove the condensation from the piping.

BRITISH POTTERS ALARMED AT APPEARANCE OF GERMAN POTTERY.

The British pottery trade, it is reported, has taken alarm at the appearance of German china in the stores of the pottery district at prices which, manufacturing potters declare, they cannot approach. Even in Longton, with its important pottery industry, German ware is being offered below the cost of local manufatcure.

These German goods, it is stated, are being represented as of Dutch manufacture, but a member of the English China Manufacturers' Association asserts that no such china is being manufactured in Holland.

The price of the German goods is fully 50 per cent under the cost of Longton production and this in Longton, the real home of English china.

"If it is true, as has often been said," said an English pottery manufacturer recently, "that Germany has been accumulating vast stocks of manufactured goods during the war, it is possible she has been passing them over the Dutch border in exchange for butter and cheese. In that case the prospects of wholesale 'dumping' from that quarter, added to the certainty of severe direct German competition in home and overseas markets will create a serious situation for the English china manufacturer."

THE BRICK LAYER IN HONG KONG.

In this day of wage arguments in which we have demands at times for a wage rate per hour that is almost comparable to what it once was for a day of eight or ten hours, it is interesting to read in a consular report from Hong Kong the following paragraph:

"The daily wage of the following tradesmen has not changed during the war, but most of the work is done by contract:

Carpenters and Joiners	60c
Caulkers	55c
Riggers	75c
Sail Makers	80c
Brick layers or cementers	55c
Painters	45c
Coolies	40c "

This is not so many cents an hour, but it is the price of a day's work, in Hong Kong currency, which is worth, roundly speaking, from 50 to 75 cents of our currency. It is interesting among other things to note that the brick layers do not receive as much as carpenters or some other skilled workers where in this country a brick layer almost invariably receives higher wages than a carpenter, and is more arbitrary as to regulations, apprenticeship, etc.

Sometimes it looks like the brick layers in their demands are the most serious handicap to the progress of brick in the building industry.

THE TRACTOR AS A FACTOR IN BRICK MAKING.

IT IS INTERESTING to observe how new labor saving devices, designed primarily for other purposes, often find their way into some branch of the brickmaking industry to help out. Motor trucks and tractors are examples in point, and the tractor, which is the latest of these to come in force, was readily viewed as having great possibilities indirectly in the drain tile industry by making it easier and less laborious to dig ditches for laying tile. Now, however, comes an interesting story in the Chilton Tractor Journal of the tractor as a labor-saving device in brickmaking and opens another field of possibilities.

It is a peculiar fact, too, that this tractor was in use long before the present day of widespread tractor propaganda, being one of the original heavy steam tractor types. The story in question has to do with the use of the tractor to save labor at the plant of the Hydraulic Pressed Brick Co., Winslow, N. J. "At this plant, one of the several owned by the company, there is made both "mud" and "pressed" brick, meaning, presumably, soft mud and stiff mud or soft mud and dry pressed.

After the clay is dug out of the pit and brought near the plant on a narrow-gauge railroad, which, owing to circumstances can not enter the plant proper, the clay is dumped and spread out on some open ground adjoining the plant. It being hard and lumpy, the tractor and harrow is used for breaking it up and preparing it for work. Clay is hauled into the plant by wagons, equipped with loaders, which suggest the original hay loader except of course it is different and more ruggedly constructed. This rig, as well as the harrow is handled by tractors, during the process of loading, after which the horses or mules take the load into the plant.

One may remark here parenthetically that even this equipment should be a motor truck equipment instead of horses.

The description of the use of the tractor in this case, which is a little bit vague, probably from a lack of knowledge of the clayworking industry, suggests somewhat wide possibilities for the use of tractors, motor trucks and loaders, where surface clay or clay so near the surface that the overlaying soil may be readily stripped from it, is worked. Often horses, plows and scrapers are made use of for this purpose, and surely tractors, loaders, and motor trucks are more in keeping with the order of the day and the need to use labor-saving devices wherever practical.

This should, in fact, make quite a field for the use of the heavier tractors, perhaps some of the steam type and others of the gas type which have the pulling ability to perform such work.

High Cost of Education.

Employer—"For this job you've got to know French and Spanish, and the pay is eighteen dollars a week."

"Lord, Mister! I ain't got no edication; I'm after a job in the yards."

"See the yard boss. We'll start you in at forty."—Life.

CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

WISCONSIN BRICK FIRM HAVE GOOD SEASON.

Editor The Clay-Worker:

Enclosed find check covering our subscription to The Clay-Worker to December 1920. Our business is the best we have had for years. We would like to use some of your "Build with Brick" stickers, so please quote price.

PHILIP SCHNELL & SONS.

BRICK COMPANY HONORS WAR HEROES.

Editor The Clay-Worker:

On Saturday, September 20, the officials and employes of the National Brick Co., of Laprarie Ltd., gave a banquet and reception in the Delson, Quebec, plant hall to the returned soldiers, who had enlisted from the Delson and Laprairie plants. One hundred returned men and their friends attended the banquet. After the banquet there was a reception which was attended by three hundred and fifty. The majority of the returned men had all seen four years service overseas and just recently returned home. Mr. P. F. Fleming, general superintendent of the company, acted as chairman.

Yours truly,
P. F. FLEMING, Gen. Supt.,
National Brick Co. of Laprairie Ltd.

BRICK PAVEMENTS PROVEN BEST AT DAYTON, OHIO.

Editor The Clay-Worker:

We enclose clipping taken from the Dayton Morning's Journal of September 24, which will doubtless prove of interest, because when this particular project was fostered by former Dayton City Manager Waite, who made an address before a meeting of the National Paving Brick Manufacturers' Association at the Congress Hotel in Chicago, a year or so previous, he indicated his absolute faith in brick pavements, but seemingly later on changed to wood block ,and upon our criticism, denied that he ever favored brick pavements. As a result, according to the clipping, wood block was installed, and the street today is a fright, so we thought that, and for only a few years time, during the last two of which every one traversing the street has suffered materially, it would be of interest to know that brick is being substituted.

Yours very truly,
THE MANUFACTURERS' EQUIPMENT CO.
By J. L. Schroll, Pres.
Dayton, Ohio.

WOOD BLOCK MAY BE REPLACED BY BRICK.

City Manager Barlow will ask the city commission today to approve purchase of brick necessary for the repaving of Forest avenue from Lehman street to Neal avenue. This street was paved in 1914 with wood block, but it was found that the car traffic loosened the block and allowed water to undermine the foundation. Brick will be used in the new paving, the railroad company dividing the cost of the work. It is estimated the improvement will cost approximately $12,000.

HOW TO INCREASE THE USE OF TILE ROOFS.

Editor The Clay-Worker:

On page 144 of the August Clay-Worker, I find an inquiry from T. P., which reads as follows:

"Will you kindly give me some information about roofing tile, whether it is making progress or backsliding, and what the prospects are for a larger market for this business."

I am a roofing tile maker, having worked at the trade in Europe for something like fourteen years. I am the originator of a process to make shingle tile in packages, and have the process patented in the United States. The process has been practically used with great success in California. To prove this statement, I want to mention that at the first offer of our different made tile to the building trade we were able to make a cut in price of same to $6.00 per square against $12.00 per square for shingle tile made by the one-tile process. The first tile of our make has been on a roof now some five years, and gives full satisfaction.

We all know that the one great hindrance to the general introduction of roofing tile in this country is the abnormal price. We cannot expect an industry of any importance to develop in this line here unless we employ efficient methods, methods to cut out labor and waste as much as possible so as to enable us to reduce the price ,and still make a good profit. Here is where my process comes in. Out of 65,000 shingle tile made by the new process and burned in one kiln 26 ft. in diameter) at the plant of a Southern California company, we had but 300 pieces lost. Everything else was shipped and put on roofs. The packages are set in the kiln without any support (like fire brick slabs). Nothing is set in the kiln but shingle tile.

Not only shingle tile are looked for by the building trade, but in view of the enormous prices for wooden shingles, is it not time for the clayworking trade to throw itself into the breach and do what was done by the clayworkers of foreign lands centuries ago—produce a good durable clay roofing tile at a reasonable price for the poor, middle and rich classes, alike. Now only the rich can afford to cover their roofs with clay tile, and the rich are in the minority.

Yours truly,
R. HEDRICH, SR.
Los Angeles, Calif.

EX-PRESIDENT CLIPPERT PLEASED WITH THE SELECTION OF COLUMBUS FOR THE NEXT N. B. M. A. CONVENTION.

Dear Mr. Secretary:

I am heartily in favor of the selection of Columbus for our next National convention, for, to my mind, Columbus is an ideal place for us. Personally, I would have preferred an earlier date, as I have it in mind to take a trip to California soon after the convention, and naturally would like to get an early start. Doubtless, there are others who want to go to the Pacific Coast or to Florida so the earlier we can meet, the more satisfactory it will be to those afflicted with the wander lust. However, I know from my personal experience as an executive officer that the active members of our Executive Committee are in the best position to decide such questions in the interest of the Association.

I am glad to know that the Common Brick Manufacturers' Association will hold their meeting at the same time and place. We are all interested along the same lines, and a joint convention will be an advantage and a convenience.

We brickmakers here in Detroit are all very busy just now and it looks as if we will continue so for some time to come. The present price for brick delivered is $18.00. If we had a few more Judge Garys in this country, our industries would be better able to meet the demand for increased production, which everybody agrees is all important. It is about time that the unions, I. W. W.'s and Bolsheviks should understand that they cannot run the government.

Fritz Salmen returned this way from Yellowstone Park and Mrs. Clippert and I accompanied him as far as New York City, where we had a nice visit with Vice President Hammond and Jotham Post, of Long Island, and enjoyed a "talk fest" on the brick business in general and N. B. M. A. affairs in particular.

With kind regards, I am,

Very truly,

GEORGE H. CLIPPERT,

Detroit, Mich.

N. B. M. A. PERSONALS.

Eben Rodgers, the youngest ex-president of the N. B. M. A., was in Indianapolis October 14. The plants of the Alton Brick Co., at Alton, Ill., and St. Louis, Mo., are running to as near capacity as labor conditions will permit.

J. W. Robb, of Clinton, Ind., president of the N. B. M. A., was a recent caller at The Clay-Worker office. Mr. Robb says he would have no cause for complaint so far as business is concerned if the labor situation could be adjusted. Clinton is in a coal mining district where labor troubles are on tap nearly all the time.

G. B. Luckett, of the Crawfordsville Shale Brick Company, Crawfordsville, Ind., has devoted much attention of late to the freight rate problems which are acute in the Illinois and Indiana zone. As a result of his untiring efforts it seems as if a satisfactory solution of the troublesome question might be reached now soon.

The many friends, in the clayworking world, of Albert V. Bleininger, head of the Ceramic Department of the Bureau of Standards, Pittsburgh, Pa., will be pleased to know that Mr. Bleininger is back at his desk, after an illness that confined him to his home for three weeks. Mr. Bleininger suffered an injury to his foot early in September which it was feared for a time would result in blood poisoning.

The venerable John T. Hummert, of Quincy, Ill., attended the meeting of brick manufacturers of Indiana and Illinois, held in Indianapolis recently, and reported a busy season, the demand for brick in his locality being greater than the supply. Mr. Hummert carries his years lightly and attributes much of his success in the brick business to information obtained at N. B. M. A. conventions, of which he has been a regular attendant for many years.

Marion W. Blair, who has been superintendent of the Thornton Fire Brick Co., at Thornton, W. Va., resigned recently to accept a like position with the Yingling-Johnson Brick Company at their Johnsonburgh, Pa. plant. In common with ever one else these days who desire to make a change in residence, Mr. Blair was confronted with a difficult problem, and being unable to find suitable quarters at Johnsonburgh for his family, which consists of himself and Mrs. Blair and three healthy youngsters, they will reside at Ridgway for the time being.

Lemon Parker, St. Louis, Mo., ex-president of the N. B. M. A., has had a most strenuous season. In addition to the usual tribulations incident to the shortage of labor, they had a fire at the plant of the Parker-Russell Mining & Manufacturing Company, which put them out of commission for a time. They have rebuilt, adding improvements that are decidedly advantageous, increasing their available floor space and daily capacity materially. Mr. Parker promises to attend the Columbus Convention in February and give his old time friends of the N. B. M. A. full particulars as to the replanning and reequipment of their factory. One of the improvements was the addition of a Boyd dry press machine with which they will manufacture high-grade fire brick.

Douglas Stevens, of the Acme Brick Co., of Cayuga, Ind., F. R. Carter, of Peoria, Ill., E. D. Mattes, of the Decatur Brick Co., Decatur, Ill., A. V. Smith, of the Streator Brick Co., Streator, Ill., and Chas. F. Herman, Tell City, Ind., were among the visitors at the Hoosier capital, October 14, when the meeting was addressed by Ralph P. Stoddard, of Chicago, Ill., secretary of the Common Brick Manufacturers' Association, who enrolled several who had not previously joined the Association.

Frank W. Butterworth, of Danville, Ill., presided as chairman at the meeting of the Indiana and Illinois brick men at Indianapolis, October 14. "Frank" is noted for expedition as an executive and lived up to his reputation. He reports the Western Brick Company s plants running to capacity. They are fortunate enough to have their own coal which is taken from beneath their shale, which is a decided advantage these times.

H. C. Kleymeyer, general manager of the Standard Brick Company, of Evansville, Ind., has had no time for a summer vacation this season, having been re-equipping their brick plants. A part of the new equipment consists of a coal unloader and an automatic brick conveyor, with which he is much pleased. He promises to be present at the next N. B. M. A. convention as usual, and says he hopes that the machine and supply manufacturers will be there with exhibits of labor saving devices of any and all kinds suitable for brick yard use. He holds that the knowledge gained in "button-hole" talks convention week is of inestimable value to the practical manufacturer.

CANADIAN ANNUAL CONVENTION.

The Executive Committee of the Canadian National Clay Products Association has decided to hold the Eighteenth Annual convention at Toronto, Ontario, January 27, 28 and 29. Secretary Keith writes that the industry is again flourishing and a large attendance is anticipated. The brickmakers of the States are cordially invited to be present. Program and further particulars will be announced later.

AMERICAN CERAMIC SOCIETY.

The annual meeting of the above association will be held at Philadelphia the fourth week in February, 1920, at the Walton Hotel. Secretary Charles F. Binns is now arranging details for what is anticipated will be one of the largest and best conventions in the history of the society. In order to enable those who wish to attend both the meetings of the N. B. M. A., and the A. C. S., the date of the former has been set for the third week in February, as announced in another column of The Clay-Worker. Those desiring further information in regard to the A. C. S. meeting will please communicate with the Secretary, Charles F. Binns, Alfred, N. Y.

WANTS VOLUME OF CERAMIC SOCIETY.

A reader of The Clay-Worker desires a copy of the 1917 Transactions of the American Ceramic Society. Anyone who can supply what is wanted, please address Old Reader of The Clay-Worker.

No, son, the dry press has no relation to dry cleaning, but it does make a clean job of brick molding.

Written for The Clay-Worker.

BRICK AND BUILDING NEWS OF EVANSVILLE AND SOUTHERN INDIANA.

BRICK MANUFACTURERS of Evansville and many of the towns in southern Indiana report that the demand for brick at this time is as heavy as it has ever been in their memory and that the production is greatly curtailed because the manufacturers cannot get enough labor to operate their plants on full time. On all sides the report is that men are hard to get and that in most instances the workers do not desire to put in full time but by reason of the high wages paid them they are satisfied with three or four days a week. The Standard Brick Manufacturing Co. at Evansville report that during the month of September, because of the scarcity of labor, they were only able to operate their First avenue plant in that city fifteen and one-half days. The company report that they now are operating their other plants only about sixty per cent of their capacity. How long this condition will continue is a matter of conjecture. The company is paying "war" wages to its men. John Andres, the secretary and treasurer of the company, says that he has never seen such a strong demand for brick from out of town points and that the company is receiving many orders from points in southern Indiana, southern Illinois and northern and western Kentucky. "Evansville is just waking up, it seems," said Mr. Andres, "and things would be fine and dandy if we could only get enough men to keep our plants in full operation. That is the chief handicap just now. Of course the car shortage is worrying the brick manufacturers some, but nothing like the shortage of labor."

A great deal of construction work is being done at the various manufacturing plants in Evansville and some new factory buildings are being erected or plans being drawn for them. In most cases these factory buildings and additions are being built of brick. Graham Bros. are erecting a large tractor plant which will, when in operation employ a large number of men. The Monitor Furniture Manufacturing Co., recently organized at Evansville with Oscar A. Klamer as its head, is making arrangements to build a million dollar furniture plant and work has already started on one of the units which will be finished within a few weeks. The Globe-Bosse-World Furniture Co. is making arrangements to build a brick addition that will cost between $150,000 and $200,000. The Crown Chair Co. will build a new factory building that will cost $75,000 or more. Two hundred fifty thousand dollar bids were opened a few days ago for the new Claremont school in Evansville and while the contract was not let it is expected that it will be some time during the month of October.

The Standard Brick Manufacturing Company report that they have received big orders from Owensboro, Ky., Bowling Green, Ky., Hopkinsville, Ky., Madisonville, Ky., Slaughters, Ky., Sturgis, Ky., Springfield, Ky., and many other cities and towns in western Kentucky. One brick manufacturer in Evansville stated the other day that he had never seen so much prosperity in the state of Kentucky and that building operations are on a boom in many cities and towns of the Blue Grass state. Many of the brick manufacturers in the Evansville territory express the fear that the car shortage will get even worse than it now is by the time winter weather sets in. As it is many of the manufacturers say they cannot get all the cars they need.

The brick manufacturers at Henderson, Ky., Tell City, Ind., and Jasper, Ind., are reporting the same trouble as the Evansville manufacturers, namely their inability to get enough workmen to keep their plants in operation. Because of the great scarcity of labor, Charles Hermann of the United States Brick Co. at Tell City, Ind., recently employed a number of women and girls to assist in assorting and stacking the brick and it may be necessary for him to employ more women in the event that the labor shortage situation does not improve soon. He reports that the work of the women has been quite satisfactory.

The Standard Brick Manufacturing Co. is installing a gas producing outfit in their First avenue plant that will convert coal into gas. A part of the outfit is now on the ground ready to be installed but the company will not install it until after the busy season as it would interfere with the operation of the plant. Secretary Andres of the company said the other day that in his opinion the outfit would be installed some time in December or January.

John Andres, secretary and treasurer of the Standard Brick Manufacturing Co., has been named on a committee of citizens of that city to see that the coal operators and coal dealers are getting a fair price for their coal. The retail prices of coal in Evansville now are from sixteen to nineteen cents a bushel, while in Indianapolis the prices run from twenty-four to twenty-five cents a bushel. The local committee was named by Louis H. Kramer, who is a member of the fair price committee that was appointed a few days ago by B. F. Persons, county food administrator of Vanderburg county.

The pottery manufacturers of Evansville report a steady trade at the present time, in fact much better than this time last year and all the big plants in that city are being operated on steady time.

A HOOSIER.

THE EFFECT OF FINE PARTICLES IN POTTERY.

AN EXTENSIVE INVESTIGATION on the effect of particles of various sizes on the nature of pottery bodies writes our England correspondent, has recently been made and confirms that previously made by Kraze and others that by substituting a fine quartz for a coarser one the shrinkage of the body is increased, but whereas Kraze found the porosity was diminished Rieke found that it was increased at low temperatures, and diminished at high temperatures in the kiln.

E. Berdel had previously shown that the action of felspar is more intense than that of silica with a corresponding increase in the fineness of the particles. The fineness of the various particles is of the greatest influence on the physical character of the material, particularly when the burning is carried to a point where extensive vitrification occurs. Without altering the proportions in which the various ingredients are mixed, it has been possible by varying the fineness of the particles to alter the expansion resistance to sudden changes in temperature density, strength, transluceny and other important characteristics to a remarkable degree and to obtain advantages with respect to the finishing temperature of the kiln which are too important to be overlooked.

As the investigation was made on bodies which are not used in Great Britain, the detailed figures are of little interest, but they show the great importance of attention to matters which are frequently regarded as of minor importance, such as the grinding of various materials and the necessity of carrying out investigations of the chief body used by each manufacturerer in order to ascertain how its properties vary according as one or more of the ingredients are used in a finer or coarser state and burned at various temperatures above or below that which is commonly used in the works. For instance, a study of Rieke's results shows that the changes in porosity and density of the ware are often quite suddenly at certain temperatures and that by heating a piece of ware to 100 degrees higher than is customary the properties which it possesses may be entirely changed. This is known in a vague way by most manufacturers, but it is advantageous to know precisely the conditions under which these changes occur, as by this means improvements in quality or economies in manufacture may be obtained which cannot be gained so readily in any other manner. This is one of the instances where research on proper lines and adapted to his special needs is profitable to a manufatcurer.

THE WHYS OF N. B. M. A. MEMBERSHIP.

There are so many reasons why every man in the clayworking business should be a member of the National Brick Manufacturers' Association that no man can possibly do justice to the subject at one sitting, or in one written or printed article, because this is the parent association of the industry which includes all branches and ramifications for the purpose of education and advancement all around in the science of clay manipulation and the mechanics of the industry. It seems best, therefore, to take these whys, or some of them, one at a time, and set forth briefly and concisely the points of interest and advantage pertaining thereto.

Expert Counseling.

Let us take the matter of expert counseling, for example. The woods are full of experts and near experts. Some hang one title on themselves and some another. Some make a strong appeal, and the chances are that all of them together set you to wondering what about it, and what you ought to do. Among these are men worthy of the name, who are helpful, real experts who are desirous of earning what they get and to make a reputation for themselves. Then there are others who are probably more concerned with a desire to help you get rid of some of your money than anything else.

And they come high, as do most good things—and their imitations. Moreover, those worth-while are worth their cost. But what you want to know is who and what is worth while

That is where you can get enlightenment out of membership in the N. B. M. A. You can not only get light on the subject of who to consult and call in for this undertaking and that, but you can get expert counsel of various and many kinds. Take a look through any report of an annual gathering of the National Brick Manufacturers Association. There is enough expert counsel and definite information given in any one of these reports to amply reimburse any man in the clayworking industry for his membership fee. In a word, the printed reports of the meetings themselves are worth more than the cost to belong. Yet this is just a small part of the benefits which should accrue from such a membership.

Advantages of Membership Many and Important.

For the man who will join, attend and take the active part he should in and around the annual meetings, there is opportunity to obtain free expert advice and counsel that under other circumstances would cost hundreds, possibly thousands of dollars. Not only do they have papers and discussions by the best talent in the industry in open meetings for all to hear and to ask questions about, but any member is at any time ready to give counsel and advice to brother members.

Moreover, and not the least important by any means, there are the machinery and supply men who are always in attendance and always glad and anxious to give the benefits of their knowledge and experience to clayworkers seeking information about the business. Among these are some of the best counsellors the world has yet produced in matters pertaining to the clayworking industry. They are not only hail fellows well met, but they are there with advice that is worth while and worth money.

To sum it all up briefly, the clayworker has, through his membership in the N. B. M. A., opportunities to obtain expert counsel that is reliable, have had the test of submission to critical discussion among the members, and to get in this way, at a nominal cost information that otherwise might cost him hundreds or thousands of dollars.

If you are not already a member hurry up and get in line with the progressive boosters in the clayworking industry.

FRANK H. ROBINSON TO MANUFACTURE RICHARDSON REPRESS.

The well known Richardson double die steam repress, which has been manufactured for the past twenty-three years by the Lakewood Engineering Company of Cleveland, Ohio, will hereafter be made at the factory of Frank H. Robinson. New Galilee, Pa. A complete stock of repair parts will be kept on hand at all times, insuring prompt service, and a special department will be created for the manufacture of dry and repress dies.

THE POSTOFFICE AND THE PUBLISHERS.

The periodical publishers of the country have waged a fairly persistent and comprehensive campaign to awaken the interest of the public to the injuries of the zone system, hoping that enough pressure may be brought upon Congress to have the postal laws made reasonable once more. If the zone system had been applied to first class letter mail as well as other matter, there would long since have been a cry for reform going up from the general public. As it is, however, Congress has surely heard enough to be convinced that the zone idea as applied to periodicals is a bum proposition.

BRICK.

HOW TO FIGURE AND ESTIMATE.

Under the above title, a book has been issued by the Common Brick Manufacturers' Association and is now offered to the contractors and builders of the country as a part of the association's propaganda of education and business building for common brick. It is a compendium of information touching on brick construction, dealing particularly with small buildings in connection with which, as a rule, architects are not employed, but the work left in the hands of the contractor. The book contains a great deal of valuable information which will help the contractor who really desires to use brick in the construction of homes and moderate cost buildings. There is a chapter on the composition of mortars, which alone is ample justification for the publication, and that is but a very small part of its contents. It is being advertised in one or two of the journals devoted to contracting and offered to the trade at the nominal sum of $1.00 per copy. Brick manufacturers will do well to see that the contractors and builders of their own locality are supplied with this and other publications of the Common Brick Manufacturers' Association, Ralph P. Stoddard, Secretary, Conway Building, Chicago.

It is an A. B. C. of brick building, with architectural drawings, detailed information and photographs of actual construction that will inform the contractor who has been accustomed to frame construction on how to figure brick work. Also it illustrates and demonstrates how brick construction is actually cheaper now as well as better. The data for the book was prepared by William Carver, a Chicago architect, and it can be made to serve a splendid purpose in the promotion of better building.

There are a whole lot of problems of the day that would solve themselves sooner and easier if some of our well-meaning commentators would just let them alone.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

Title registered, contents copyrighted.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T, A. RANDALL & CO. [Inc.], Indianapolis.

Vol. 72. OCTOBER, 1919. No. 4.

CURRENT COMMENT.

If you can set brick by machinery, why do it by hand?

* * *

Hustling is a good element in a man, but it takes some more elements to make a good man.

* * *

What the world seems to need for the work of reconstruction is a lot of labor saving brickmaking machinery.

* * *

When we reach the ideal stage of development there won't be any such a thing as waste heat in brick burning.

* * *

The slogan of the industry should be keep prices down as low as possible, but make the business produce a profit.

* * *

We have heard enough, too much, in fact, about the causes for labor unrest; now, let us hear something about the remedy.

* * *

As a rule, the agitator who takes money away from working men on the presense of doing them good, in the end does them everlasting harm.

* * *

From the way the indicator points now, the problem of the future is not so much how to get enough brick as how to get enough trained men to lay them.

* * *

One of the things worthy of investigation by the clay worker is that of the electric motor drive. It seems that the industry has not made the progress it should in electric transmission.

* * *

Guessing at burns and kiln temperatures always means an element of uncertainty in the results. The right procedure is to use temperature measuring equipment and know what you are doing instead of just guessing at it.

* * *

There are melancholy days ahead of those among us who fail to learn the real meaning of Americanism.

* * *

Friendly rivalry would do a lot more good in the world if it did not so readily turn into active scrapping.

* * *

Uncle Ruben says that to run a business by guess, and by gosh, is to invite a visit from the sheriff, by gum!

* * *

We don't need theoretical explanations of the high cost of things so much as remedies for existing conditions.

* * *

Unless this strike madness is abated there will be some deserving workmen who will fail to see the "ghost walk."

* * *

The philosophy of tile drainage has been pretty well established and what we need now is some follow-up salesmanship.

* * *

Not only has the worker of today the highest wage scale ever known, but there are also before him more opportunities for material progress.

* * *

In connection with the Lincoln Highway it has been convincingly demonstrated that the brick paved way is the best way to make good roads.

* * *

The auto and motor truck have done so much to promote good streets and roads that the paving brick folks may well do their part in buying motor trucks.

* * *

Brickmaking is a busy business pretty well all over the world these days and in the old countries where brick predominates the supply is way behind the demand.

* * *

The machinery folks and the engineering experts are likely to be kept mighty busy this winter, so those planning for new equipment and enlargements have need to get at the matter early if they would escape delay.

* * *

Humanity in America has a measure of the same faults and weaknesses of humanity elsewhere, but there is a spirit here born of the freedom and natural greatness of the country that wins and will continue to lead the world for generations to come.

ALABAMA FIRST.

Alabama, which comes first alphabetically in the list of states, is the first to report the enactment of an anti-strike law which provides a fine of not more than $1,000 and prison sentence for persons found guilty of entering into combinations or agreements to impede industry in the state. This is a good start at something that ought to be done promptly, so now let the other states fall in line and get busy to the end that we may put a stop to strikes and devise other means for settling industrial disputes.

CLOSING THE OPEN SHOP IN ENGLAND.

Organization and consolidation in the pottery trade in England among both the manufacturers and the employes has resulted in the putting forward of an idea of what is plainly a closed shop. The idea is that the consolidation should be chartered in a manner which would make it imperative for only trade union men to be employed and only such operators be permitted to operate as are members of the trade association. In a word it means closing the open shop, and it is certainly contrary to the spirit of industry as manifested in this country today. The idea may apply and prove practical in England, but will never find approval in this country on the part of the heads of industry who are today going on record everywhere as in favor of the open shop.

LABOR AND INDUSTRY.

We have had a perfect flood of oratory and printed matter on the subject of what causes the present industrial unrest. These are all more or less interesting, and contribute their bit to the literature of nations, but what we need right now is a cure, not a continued discourse on the causes. Moreover the first step toward that cure is to put an end to strikes and get busy. Work is the greatest cure known for worry and unrest. Also the countrywide pursuit of work will soon result in relieving many of the reputed causes for unrest. It will result in greater production which will end the stringencies and bring prices to a proper level all around. And that, after all, is the best way—to get down to a proper balance again and then all pull together that we may go forward to better and bigger things for everybody.

CEMENT DRAIN TILE AND ALKALI AGAIN.

After an interruption of two years by war conditions the Bureau of Standards has again taken up field work in the inspection and testing of drain tile in alkali soils. In the announcement of the resumption of this work we read that in Minnesota pieces of tile which have been in the ground since the last inspection have been removed for test and the concrete found to be uninjured either by alkali or acids. But a number of both the best and the poorest tile were found to be cracked. The thought is expressed that during the cold weather water backed up and stood in the pipe, freezing and bursting it. Presumably when the Bureau gets through with the work it has now outlined we will have some positive and definite information about concrete in the drain tile world. Meantime, it is well to keep in mind that burned clay is the standard and most dependable tile so far devised by man.

THE DRAG ON PROGRESS.

Just the other day a man who had retired from the brick business to enter other lines of endeavor, expressed himself feelingly upon the subject of the greatest drawback to the progress of the brick industry.

He said the brick business was a good business with a fine future before it and room for more expansion and progress than almost any other industry in the country, but it had a serious drawback in the person of the brick layer. He said it was not so much a matter of wages, though they often demand inordinately high wages, but the arbitrariness of brick layers personally and of their organizations in putting limitations and restrictions around their work.

There is nothing like enough brick layers in the country to meet the possibilities of another building season, nor has there at any time been in training sufficient young men to meet the possible needs. And those already in the business are not inclined to encourage such training. Their concern is centered too much on their own immediate welfare and not enough upon the future of the industry as a whole and the needs of the country in the way of training more for the erection of permanent buildings in the future.

Somehow, some way, there must be an easing up or a removal of this drag for the building brick industry to prosper as it should.

THE OPEN SHOP.

One of the pleasantly astonishing things of the season is the unanimity with which commercial bodies as well as industrial organizations are giving indorsement to the open shop idea. There has been argument pro and con about the open and closed shop for a number of years, and as a rule those business men not directly affected by it have not taken the matter seriously enough. The disturbances of the day, however, have been sufficient to drive home a full realization of the autocracy behind the closed shop idea, and with this realization there has followed action prompt and thorough which should be convincing enough to put a quietus upon this question.

KEEP UP THE TECHNICAL WORK.

While the clayworking industry in this country has made wonderful progress in developing technical knowledge and progress that has astonished the old world, there is still room for other progress and the good work should be kept up. The more we learn of the technology of clay and of brickmaking the more we are impressed with the importance of technical knowledge and the necessity for acquiring more. The general and established channels for the development of this knowledge are found in the American Ceramic Society and the National Brick Manufacturers Association. It is a part of the duty of every progressive clay worker to not only hold a membership in these organizations, but to make that membership an active one and help in the development of research work and technical knowledge for the benefit of the industry as a whole and for every individual member thereof.

CRAFTSMEN IN BRICK.

We are expecting to see much more brick building done during the next few years, which means of necessity the training of more brick layers. An excellent idea suggested in this connection comes from the American Architect, which says that one thing yet needed to place the brick building industry on a higher plane is not more bricklayers, but more craftsmen in brick, who can see in their work something above dollars and cents. We need more brick layers, undoubtedly, because there will not be enough to perform the work required in another year. But among them we need to develop as suggested here more real craftsmen, men who will take the initiative in bringing out all the possible beauties of brick in architecture, to the end that we may not only have better homes, but also homes that are free from the monotony of plainness and have more of the element of architectural beauty.

LET THE PUBLIC KNOW.

One of the plain duties of every brick manufacturer and every man interested in promoting the brick industry is to employ a good part of the fall and winter season at the work of letting the public know about brick and its possibilities as a building material in competition with lumber and other offerings. In that talk by Allen E. Beals before the New York and New England Brick Manufacturers, which was printed in The Clay-Worker for September, this subject was touched upon in a manner that should be pondered over and some real action taken.

He points out that it has been shown that a brick house of a given size will today cost no more than a frame house, which gives brick a decided advantage because the brick man has more to offer for a given price than anybody else.

But, as he said, the brick men will gain nothing unless they let the building public know these things by word of mouth, by citation and example, and, especially by the liberal use of printed propaganda.

This points the way plainly to one of the important duties of the industry during the winter season, and that is to get out and circulate propaganda that will let the public know about brick and the great advantages which will come from using it in building operations.

TAKES OVER LAKEWOOD LINE.

Frank H. Robinson of Pittsburgh., Pa., announces that he has taken over the manufacture of the "Lakewood Line" of dryer cars, represses, kiln bands and dryers, formerly built by the Lakewood Engineering Company of Cleveland, Ohio. The rapid development of the industrial haulage and construction plant departments of the Lakewood Engineering Company has made necessary the removal of the clayworking equipment department to some other location. This equipment will hereafter be manufactured in the new factory of the Falls Mine Car & Equipment Company (builders of wood body coal and clay cars) at New Galilee, Pa. A service department will be created to give special attention to the needs of the clayworking industry, and a full line of equipment will be handled. A new catalog will be ready for distribution before the close of the year.

A LITTLE NONSENSE.

Old Father Hubbard,
Went to the cupboard
To get his poor self a drink.
When he got there,
The cupboard was bare,
So he got him a drink at the sink.

Fashion's Fuzzes.

"Do you think side whiskers will ever come in fashion again,"

"They're in fashion now," said Mr. Rufnek. "The girls are wearin' 'em over their ears."—Washington Star.

She Made Him Tender.

Wife (complainingly)—"You're not like Mr. Knagg. They've been married twenty years and Mrs. Knagg says her husband is so tender."

Husband—"Tender! Well, he ought to be, after being in hot water all that time."—Portland Telegram.

PRACTICAL CLAY TESTING
For Fire Brick, Face Brick, or Common Brick, Full size Brick made and burned. Difficult Brick Yard Problems Corrected. L. W. FLOOD
Lowe Ave., and 57th. St. Chicago, Ill.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

required by the act of Congress of August 24, 1912, of The Clay-Worker, published monthly at Indianapolis, Ind., for Oct. 1, 1919.

State of Indiana, County of Marion, ss:

Before me, a notary public in and for the state and county aforesaid, personally appeared Theo. A. Randall, who, having been duly sworn according to law, deposes and says that he is the editor and business manager of The Clay-Worker, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher, T. A. Randall & Co., Inc., Indianapolis, Ind.
Editor, Theo. A. Randall, Indianapolis, Ind.
Managing Editor, none.
Business manager, Theo. A. Randall, Indianapolis, Ind.

Owners are T. A. Randall & Co., Inc., Indianapolis, Ind.; Theo. A. Randall and James E. Randall, Indianapolis, Ind.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

That the two paragraphs next above, giving the names of the owners, stockholders, security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) Theo. A. Randall, Editor, Owner.

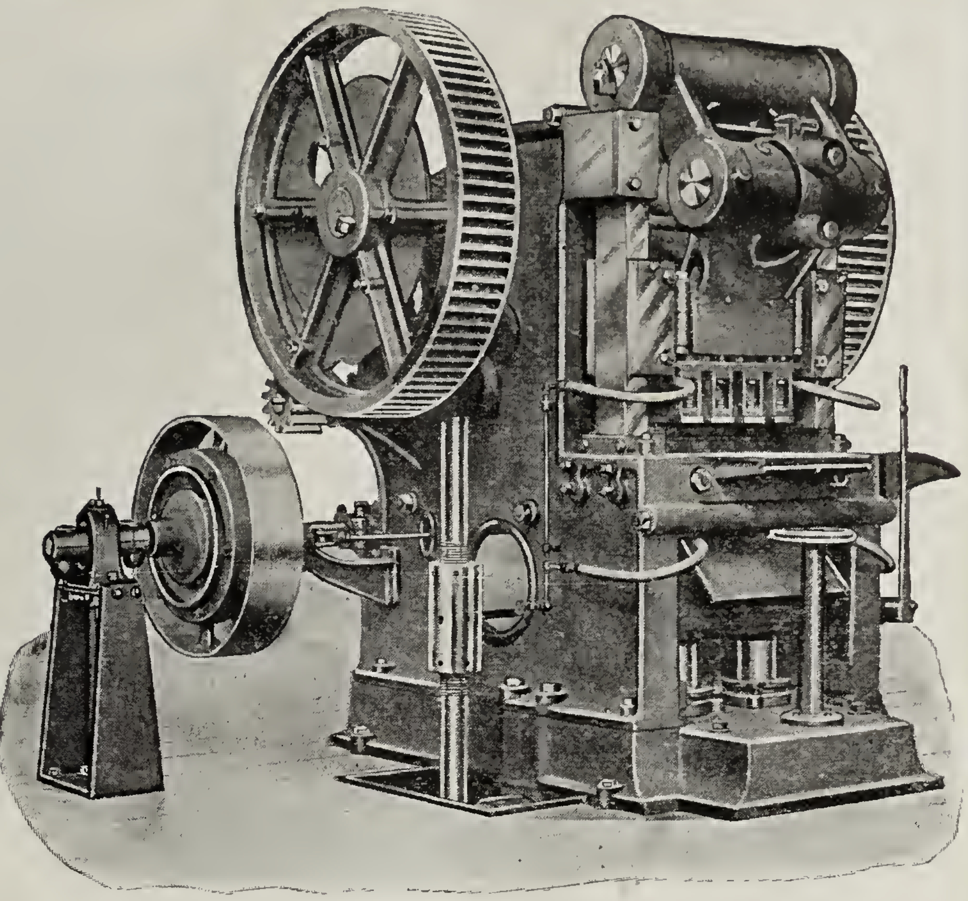
Sworn to and subscribed before me this 2nd day of October, 1919.

(Signed) WALTER P. HANNA, Notary Public.

[Seal] My commission expires April 4, 1920.

"Built Right Run Right" Clay Plant Equipment.

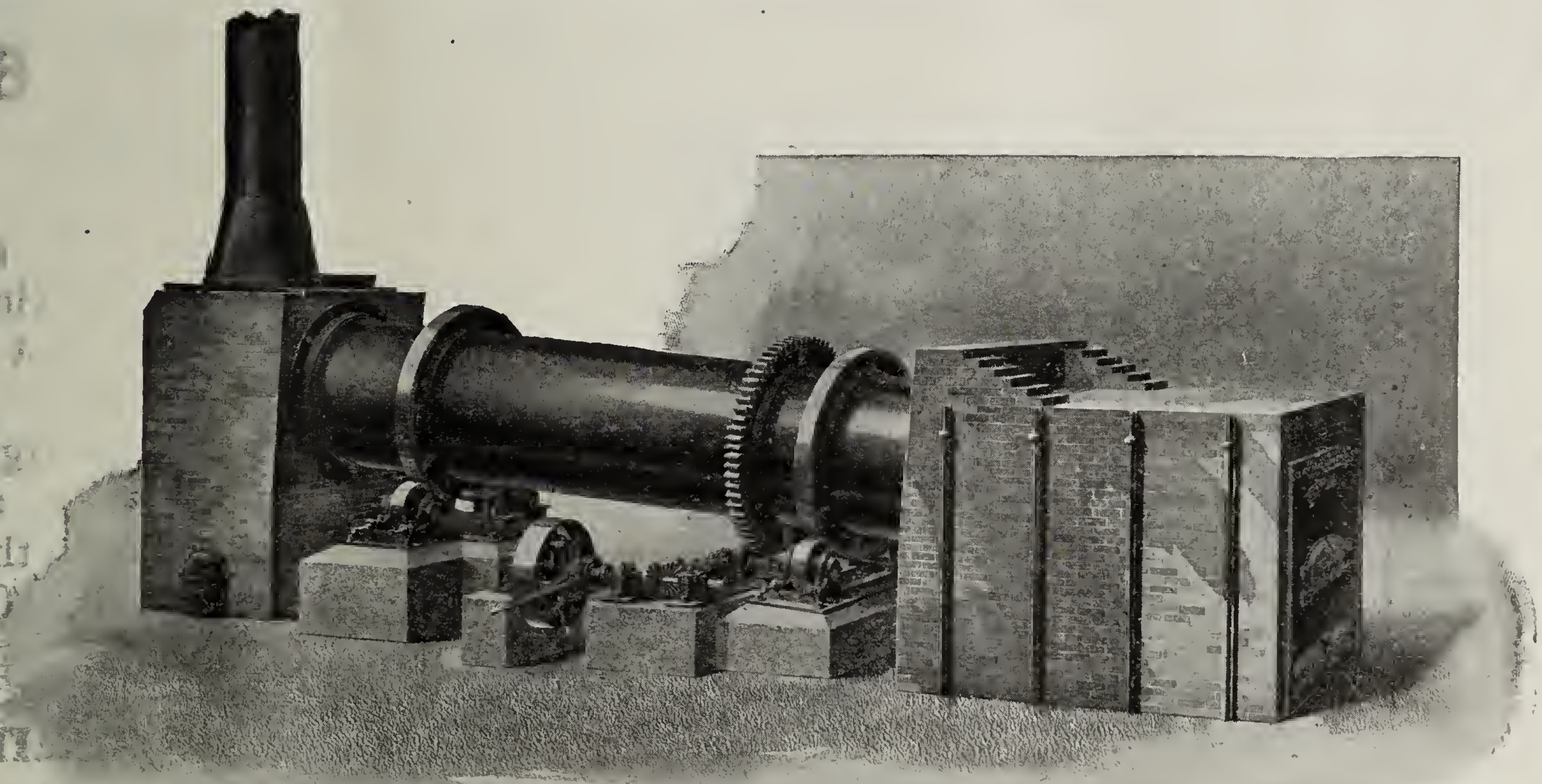
American Model "C" Dry Press



Just the press for its class of work. Experience has shown us how to build a satisfactory Dry Press and that experience is back of the American Model "C" We invite you to investigate this press. Read the specifications carefully. We will send them on request.

American Rotary Drier.

The American line of Rotary Driers has a splendid reputation and is used extensively. Send for specification sheet.



American Rotary Drier.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

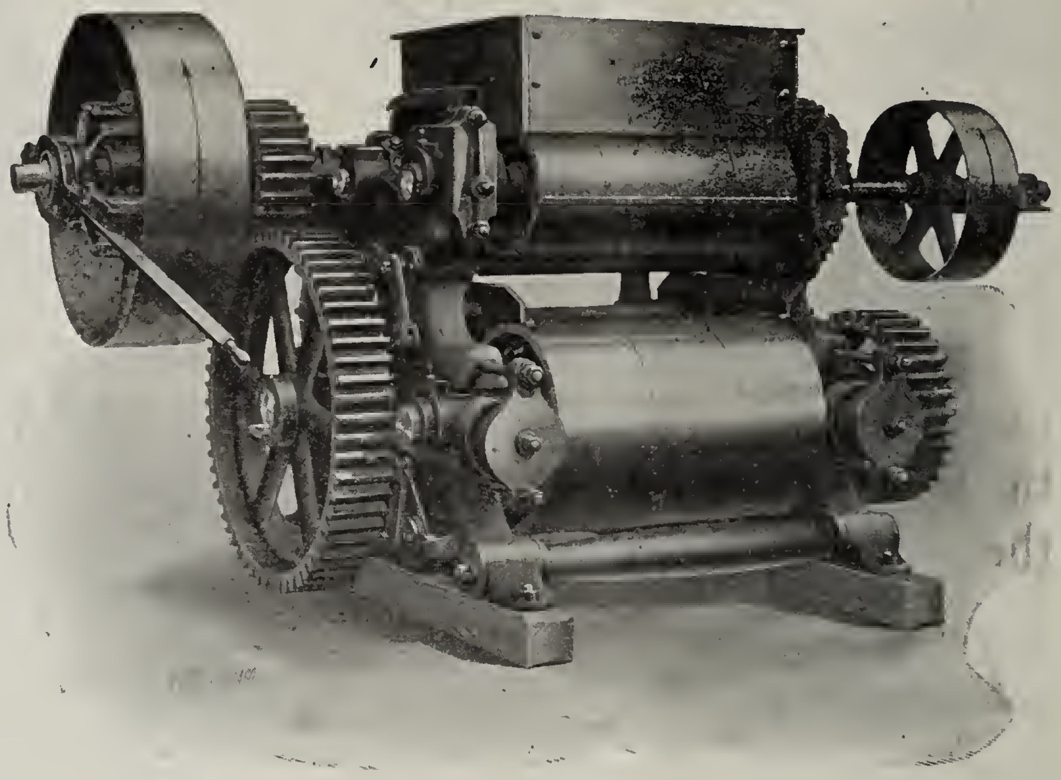
BUILT RIGHT RUN RIGHT

"Built Right Run Right" Clay Plant Equipment.

"Built Right Run Right" Clay Plant Equipment.

American No. 10-D. Crusher

There are no crushers better built than the American No. 10-D. It is superior in design and construction. It is faultless in operation. Description free.

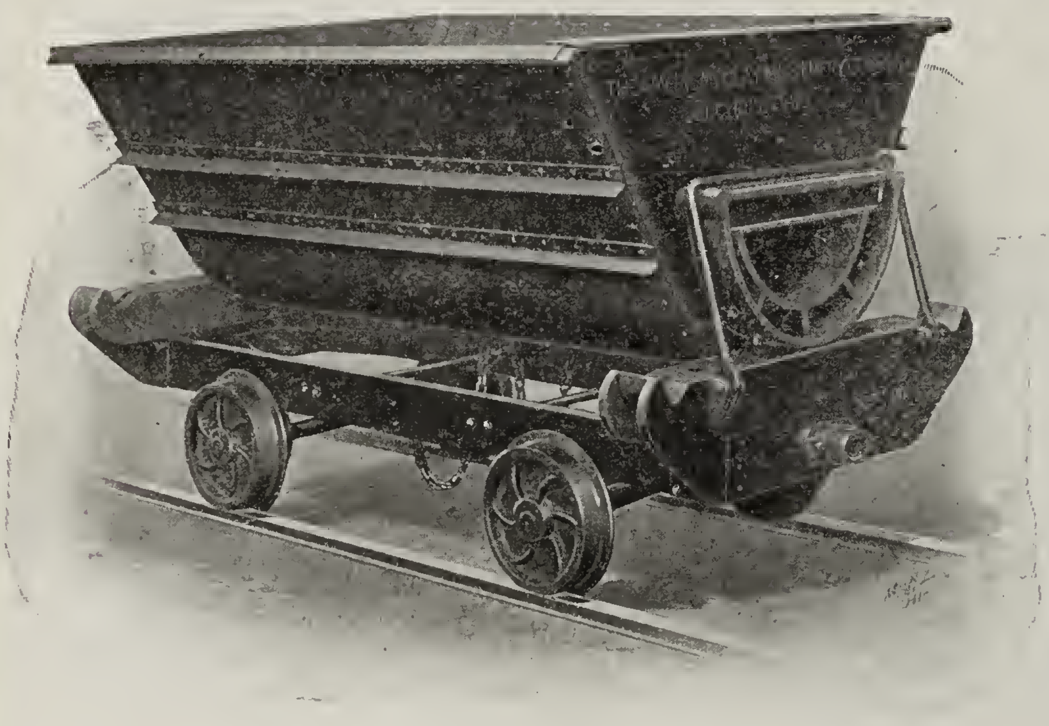


American No. 10-D Crusher.

American No. 68 Dump Car.

These dump cars are characteristically American in quality. You'll not be disappointed in them.

In design they are right. In construction they are faultless. In operation they are satisfactory. Get Car circular.



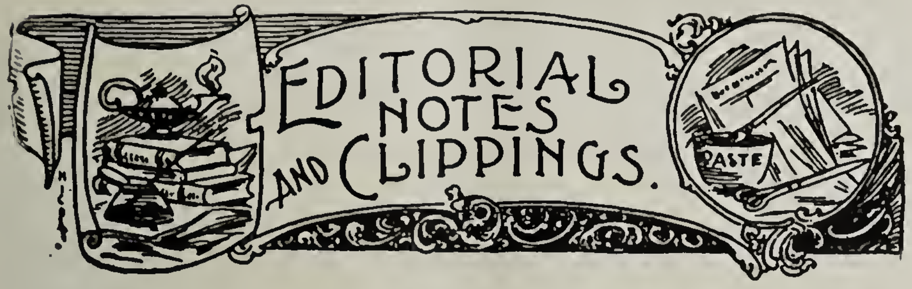
American No. 68 Dump Car.

The American Clay Mch. Co.

Bucyrus, Ohio U. S. A.

BUILT RIGHT RUN RIGHT

"Built Right Run Right" Clay Plant Equipment.



EDITORIAL NOTES AND CLIPPINGS.

The Beaver Clay Products Company will erect an immense clayworking plant at Ellwood City, Pa., to have a daily capacity of 100,000 brick.

The Findlay Red Brick Company, of Findlay, Ohio, has been incorporated by Walter G. Kirkbride and others with $75,000 capital stock.

Clinton V. Hackman, acting president of the Mt. Union Refractories Co., of Mt. Union, Pa., will locate a fire brick plant at Barrett Station near Clearfield.

The Fort Collins Press Brick & Tile Company, of Fort Collins, Colo., has been incorporated with $15,000 capital stock. Those interested are H. G. Finley, G. H. Dixon and H. A. Meyer.

A course in bricklaying for colored youths is an innovation that has been inaugurated in the public night schools of Washington, D. C., in an effort to increase the number of skilled bricklayers.

The Schaf brick plant at Two Rivers, Mich., has been purchased by C. C. Stadler, of Chicago, Ill., who will overhaul the plant, installing new machinery and appliances for the manufacture of brick and tile.

The ten-kiln plant of the American Electric Porcelain Co., at East Liverpool, Ohio, which has been idle for some time has been re-opened by D. E. McNicol Pottery Co., and will turn out Rockingham and yellow ware exclusively.

At a recent meeting of the stockholders of the Chestnut Ridge White Brick Company, New York City, the name of the concern was changed to the Chestnut Ridge Corporation, of which James G. Beemer is president and Alfred Petit is secretary.

Robert C. Mitchell, who has been identified with the brick interests of Cleveland for a number of years, and for some time past has had general charge of the brick department of the Cuyahoga Builders' Supply Co., has recently been promoted to assistant to William A. Fay, general manager of that company.

Burning of magnesite, chrome and silica brick started at the plant of the McKnight Fire Brick Company, Porterville, Cal., early in October with about 6,000 forms of various classifications under treatment. All of the brick on which work is now progressing have been sold. At the offices of the company it was stated that during the past few weeks orders for more than 90,000 magnesite brick were refused because the product could not be turned out fast enough to meet the demand.

Maurice Clark and Thomas B. Kean, of Cumberland, Md., and J. E. Mecusker, of Frostburg, Md., have formed a company to be known as the Cumberland Brick Co., and have purchased the plant of the Queen City Brick Co., in Cumberland. The plant, which has been idle for some time, will be overhauled and put in shape to turn out 30,000 brick per day. Mr. Mecusker, who will be in active charge of the plant, has been manager of the Mayer Brick & Tile Company, at Frostburg, for some time. His son, H. E. Mecusker, will succeed him as manager of the Frostburg plant. The work of overhauling the machinery is in charge of J. H. Weller.

The Liberty Clay Products Co., Newcastle, Pa., has purchased the plant of the Diamond Brick & Tile Company, located at Palmyra, Ohio, thus completing its facilities for manufacturing every type of building material made from clay products. The local concern will take possession of the new plant on November 1. This new acquisition of the Liberty company completes its line of manufacture in that the plant at Palmyra is especially constructed for making cellar and foundation tile and hollow ware. The company has plants located at Carbon, Volant and New Castle, at which places face brick, common brick and hollow ware are being made. The New Castle plant has been remodeled and the capacity greatly increased. It has resumed activity and is operating in full capacity, as are all of the other plants of the company.

The Farber Clay & Mining Co. is pushing the work on their new plant at Farber, Mo. The brick will be burned in continuous tunnel kilns with producer gas.

The Purington Paving Brick Company, of Galesburg, Ill., now has all of its plants in full operation, with enough orders on hand to run right through the winter.

The Springfield Paving Brick Company, Springfield, Ill., recently signed a new wage agreement with its employes, providing an eight-hour day and a ten per cent increase in wages.

The Kewaunee Clay Products Co., of Kewaunee, Wis., has been incorporated by H. O. Wilson, E. E. Andrews and C. Schmeies. The capital stock of the company is given as $15,000.

G. E. Comer, secretary-manager of the Carroll County Trade Board, of Carrollton, Ga., writes that there are two proposed brick plants under consideration for Carroll County, and will be glad to have catalogues and price lists of entire equipment.

The Southside Brick Works is the name of a newly incorporated concern at Richmond, Va., which has taken over the plant of the South Richmond Brick Works. E. A. Stumpf is president, E. A. Stumpf, Jr., is secretary and J. J. Boehling, treasurer of the company. Improvements looking to an increased capacity will be made in the plant without delay.

Word was received recently that William A. Stanton, vice-president of the General Refractories Company, of Pittsburgh, Pa., died suddenly of heart trouble in a hospital in London, September 28. Mr. Stanton sailed from New York September 18 on a business trip. He was fifty-three years old and had been very active in the fire brick business for many years.

Joseph Johnson was caught under a fall of clay at the plant of the Rochester Clay Products Co., Rochester, Pa., and killed instantly. The accident was due to a premature explosion of powder with which they were blasting down the clay. He had set six blasts and when his first blast failed to go off he approached the network of charges intending to cut the wires to his charges and reset them. When he approached to within a few feet of the wires the first charge went off throwing him to the bank. One of his fellow workers rushed to his side to pull him from the clay bank but a second charge went off, throwing the rescuer to the clay wall. In quick succession the other five blasts went off and when the dirt was cleared away Johnson was found dead.

The Kane Brick & Tile Co. has just been organized at Ridgway, Pa. The promoters and principal stock holders are J. D. Ramsey, W. G. Bauer, D. J. Driscoll, John and Henry Vallmer of St. Marys; F. S. O'Donnell, of Johnsonburg; J. C. Miller and Edwin R. Treharne, of Ridgway; Fred Hasselback, of Falls Creek; W. S. Steel, of Brockwayville and W. R. Meredith, of Punxsutawney. The newly organized company has taken over the plant of the Kane Brick Company at Kane and the Meredith plant near Reynoldsville. Both plants are fully equipped and ready for capacity operation.

The Burton-Townsend Company has solved the housing problem for its employes at its Ashtabula, Ohio, plant by erecting a building at the plant for their men. The building includes sleeping quarters with shower baths, and a large community dining room with a kitchen presided over by a competent "chef." The men are charged $8.00 a week for board and lodging. The company is now employing about 35 men but more are wanted. The concern is manufacturing 40,000 building bricks per day at the present time, which is about 50 per cent. of the machine capacity of the plant. The company is contemplating the erection of six or eight additional kilns, and when this is done, the capacity of the institution will be increased to 24,000,000 bricks a year. The factory will soon begin work on an order sold a few weeks ago to Cleveland parties consisting of sixty carloads of builders. An attractive feature recently put into effect at the plant is free life insurance for employes. After an employe has been with the concern for three months, he is given a life insurance policy for $500, paid for by the company. This increases $50 per year until it reaches $750. As long as the man remains in the employ of the company, the premiums are paid by the company.

EDITORIAL NOTES AND CLIPPINGS—Continued.

C. R. Johnson will start a brickmaking plant at Anderson, S. C., to be operated by electric power.

The Ohio Tile Machinery Co., of Willoughby, Ohio, has been incorporated by H. E. Hammar, M. N. Goodrich and others. The company is capitalized at $40,000.

The Athens Brick Corporation has been granted a charter. H. B. Downing, of Atlanta, and J. I. Mangle, of Athens, Ga., are at the head of the enterprise which has $100,000 capital stock.

The Faison Brick Company, of Rocky Mount, N. C., was recently incorporated with $100,000 capital stock. They write that they would like to receive catalogues of brick and tile machinery and prices on electric shovels.

The De Soto (Iowa) Brick & Tile Co.'s plant, which was partly destroyed by fire, has been purchased by Lloyd McCorkle and F. J. Herdliska. The plant will be rebuilt and equipped with modern machinery for the manufacture of brick and tile and glazed silo blocks.

Willis Fisher, well known as an official of the Sayre & Fisher Brick Company, Sayreville, N. J., died recently at his home at Sayreville, aged forty-seven. He had been ill for several months. Mr. Fisher was a brother of Edwin Fisher, president of the company. He was active in social and charitable work throughout the county. Funeral services will be held at his late home on Thursday afternoon.

Adam J. Weckler, a pioneer brick manufacturer of Chicago, died September 20, at his home in San Diego, Cal., where he had been living for the last few years. He had lived in Chicago since 1843 until recently. His first venture in the brick business was shortly after the great Chicago fire, when he organized the Weckler Brick Co., of which he was president. Later he became interested in the Weckler-Prussing Brick Company and when this firm was consolidated with the Illinois Brick Company he was president of the latter concern. Mr. Weckler was a charter member of the National Brick Manufacturers' Association and was the first treasurer, being elected at the initial meeting of that organization at Cincinnati in 1886.

The Bibb Brick Company, of Macon, Mo., is erecting an entire new plant adjoining their present plant, to be used in the manufacture of building brick. This will enable the old plant, which has been dividing its capacity between building brick and tile, to return to building brick exclusively, while the new plant, with additional dryers and kilns, to be devoted strictly to tile. The machinery for the new plant is being supplied by the Chambers Brothers Company of Philadelphia, Pa., and the L. E. Rodgers Engineering Company, Chicago, has the contract for the dryers.

The Penn Brick Corporation, of Bradford, Pa., has been incorporated with $100,000. F. M. Nash is at the head of the enterprise.

The Carolina Shale Brick Company, of Charlotte, N. C., has closed a contract with the Chambers Brothers Co., Philadelphia, Pa., for nearly all of the machinery for their new plant. B. Mifflin Hood, of Atlanta, Ga., is largely interested in this new plant.

As a part of their fight against union bricklayers, who are striking for $1.25 an hour, the Mason Builders' Association, of Philadelphia, has under consideration the establishment of a night school to teach the bricklaying trade to boys and young men.

BOOK OF SMILES.

The current issue of this little magazine of good cheer is the poet's number. The first bit of verse is as follows:

"OOH!"

When first he came to see her
He showed a timid heart,
And when the lights were burning low
They sat this far apart.
But when his love grew warmer
And they learned the joy of a kiss,
They knocked out all the spaces
ANDSATUPCLOSELIKETHIS!

And there are other verses to suit the tastes of varying fancies. The closing or final word of the issue is a business proposition, to wit, as follows:

Have you ever compared your old cars with the Standard roller bearing drier cars, equipped with our patented, flexible, self-adjusting journal box. For further particulars, or a copy of Smiles, address Standard Dry Kiln Co., Indianapolis, Ind., see ad on page 316.

Father a Lap Ahead.

Father ruefully gazed at his last dollar. "Money has wings and house rent makes it fly," he said.

"Yes," said his fifteen-year-old son, "and some houses have wings, for I've seen many a house fly."

"You're smarter than your old dad, maybe, my son, but I always thought that no part of a house except the chimney flew!"—The Continent.

FACE BRICK WANTED

OUR PRESTIGE, responsibility, and reputation for service is bringing us more orders for high grade artistic Face Brick than we are able to furnish, although we already represent in Texas, which is a mighty big state, many of the leading manufacturers of the country.
If you are not already satisfactorily represented in this field and have anything to offer for shipment this winter, look up our financial rating and send us your samples with f.o.b. plant quotations, and we can make the connection worth while to you, as we manufacture no face brick ourselves.

Fraser Brick Co.
Suites 808-9-10 Sumpter Bldg. Dallas, Tex.

THE

FURNACE GAS PRODUCER

After Thorough Investigation

Has So Convincingly Demonstrated Itself A Fuel And Time Saver for Periodic Kilns That We Have Taken Over The Manufacture And Distribution Of It For the United States North Of The Ohio And West Of The Mississippi Rivers With The Exception Of A Part Of Pennsylvania.

Its Extremely Low Cost And Simplicity Of Installation Brings It With in The Reach Of Everybody.

For Further Information Write To

International Clay Machinery Co.

DAYTON, OHO

Mention THE CLAY-WORKER.

Written for The Clay-Worker.

MILWAUKEE AND WISCONSIN CLAY NEWS.

MILWAUKEE is experiencing one of the greatest building booms in its history. Thus far this year building operations amount to more than $14,000,000, which is within $1,000,000 of the record in 1912, Milwaukee's biggest year. But this boom does not confine itself to Milwaukee alone, for reports come in from every section of the state that similar conditions are prevailing. The really remarkable thing about construction activities is that the demand is growing in spite of price increases all along the line,

It is believed that by the close of the year, building operations in Milwaukee will pass the $17,000,000 mark and possibly reach the $19,000,000 goal. It is not war prices which have rolled up such a total, as builders have scaled down their costs rigidly because future tax assessments are likely to be based on figures given in the applications for the building permits. There are more small buildings on the lists of permits this year than ever before, in fact just twice as many. Most of the operations have been in the newer residence sections of the outskirts of the city and five times as many bungalows have been built as the once favorite duplex. More apartments have been built in eight months ending September 1, than in any twelve months before, yet if building keeps up at the same rate for the next five years, with the same natural growth of the city, there will still be a shortage of from 5,000 to 7,000 housing units in Milwaukee. During the month of September building permits reached a total of $2,122,807.

The cities of Eau Claire, Oshkosh, Green Bay, Superior, Manitowoc, La Crosse, and in fact every community of any size, reports building operations exceeding any previous records established.

Under the present conditions price will unquestionably remain firm, and as one of the large local dealers said: "The man who bought his building material and went ahead with his operations, heeding the large investor, made no mistake, as there cannot be any immediate radical price change. The decrease in prices, if any, is bound to be a gradual one, as labor prices and other conditions will have to be adjusted proportionately.

The Kewaunee Clay Products Company, Kewaunee, Wis., recently organized and incorporated with a capital stock of $15,000, has purchased the yards, machinery and equipment of the former Star Brick Co., of that city, which has been idle for a number of years. H. O. Wilson of Minneapolis, and C. Schmiers of Whitewater, Wis., who will head the new company, have been at Kewaunee the past week, making necessary arrangements to start operations at once.

Mr. Wilson's experience in the clay product industry extends over a period of forty years, and he will assume active management of the manufacturing end of the business, while Mr. Schmiers will act as business manager.

In addition to the machinery and equipment already purchased, considerable new machinery will be installed, with an aim of making it one of the most complete and modern plants in Wisconsin. The incorporators of the new company are H. O. Wilson, C. Schmiers and E. R. Andrews.

D. S. Merritt, officer of the Streator Brick Co., Streator, Ill., who was in Watertown, Wis., recently, on business for the company, is of the opinion that prices and conditions will remain at the present level for many months to come, and urged contractors and companies that are contemplating building operations to buy well in advance. Mr. Merritt said that in communities where extensive building operations are being planned for next year, companies have been formed and materials already secured, as a precautionary measure against any price increase and the shortage of materials, which is bound to become still more acute.

C. C. Stadler of Chicago has purchased the brick plant at Two Rivers, Wis., of Peter Schaf, who has owned and operated the plant for many years. Mr. Stadler will remodel the entire plant and add considerable new machinery, which will nearly double its present capacity. A high class brick will be manufactured, as well as tile and other clay products.

A. BADGER.

We at least know just where we stand in the matter of trade combinations and price agreements, for the attorney general has come out frankly and said that he will prosecute under the anti-trust laws as long as we have them. Something might be said here about a change of attitude now that the war needs have passed, but what we need most and first is to get rid of some of our anti-trust laws.

SIL-O-CEL PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

Insulation Increases Kiln Output

It eliminates the necessity of overheating the hotter portions of the kiln in order to bring the cooler parts up to temperature.

Owing to its low heat conductivity factor SIL-O-CEL is especially adapted for use as an insulating medium. It prevents heat from penetrating the walls and crowns of the kiln, distributing it at full intensity throughout the kiln.

Write for Bulletin W-5 giving complete kiln insulation details and illustrating the application of SIL-O-CEL brick, block, powder and cement.

CELITE PRODUCTS COMPANY
NEW YORK 11 Broadway
LOS ANGELES Van Nuys Building
PITTSBURGH Oliver Building
SAN FRANCISCO Monadnock Building
CHICAGO Monadnock Building

The Modern Way
1. Only one central coal location
2. Clean kiln yard
3. No cleaning of furnaces or relining them, or bag walls ever required
4. Minimum labor attention and responsibility
5. Much shorter kiln burning periods
6. Heavy saving of fuel
7. Increased burning capacity without additonal kilns.
8. A better and more uniformly burned product
9. Avoids smoke nuisance absolutely,
10. And many other advantages
PRODUCER HOUSE
The Old Way
1. Excessive and wasteful burning conditions
2. Requires wasteful manual labor
3 Longer kiln burning periods
4. Uncertain burning results
5. Expensive product wasted through improper burning
6. Heavy kiln repairs needed
7. Unsightly conditions, etc.

THE DAY OF FIRING KILNS BY HAND IS PAST

Hand firing kilns in most clay plants is tremendously wasteful. You are dependent on human element by hand firing—that means longer time than necessary. It is also impossible to get complete combustion by hand firing, and this results in a big percentage of fuel waste; besides, hand fired furnaces require many men where the plant is reasonably large, which are high priced and hard to get. Both of these problems and many others, too, are solved completely by the

UNDERWOOD PRODUCER GAS SYSTEM
(Patented)

This highly efficient patented equipment puts an end to wasted fuel by getting the very last unit of heat out of each ton of coal. It saves as high as 30 to 40 per cent. of coal, and similarly in labor in comparison with hand fired methods.

Our Gas System saves fuel because of its distinctive patented construction, insures completeness of combustion. It puts the maximum of generated heat in the kiln, thereby saving a big percentage of the heat energy that in hand fired furnaces is wasted in many different ways. Our Gas System cuts the cost of fuel requirements in another way by reducing from 40 to 50 per cent. of the time required for water smoking and burning, and it eliminates the smoke problem entirely.

The degree to which our Gas System saves labor is demonstrated by the fact that the coal can be brought from the railroad cars direct to the gas producer platform automatically, thus not only eliminating man-power, but also horses, carts, trucks, etc. Moreover, one man per shift can look after the burning of a dozen kilns and do it far better than six or seven men by hand firing.

Our Gas System reduces kiln investment when a greater burning capacity is desired or required, for it will accomplish with six kilns that which requires eight kilns when hand fired, and at the same time prolongs the life of the kilns indefinitely since furnaces do not burn out, bag walls are not melted down, crowns are not wrecked, there are no furnace irons to burn out, no furnaces to clean. Our Gas System has plenty of reserve capacity. It requires no auxiliary draft equipment. It is a time tested device that is already saving money for scores of well-known concerns, and has proven beyond any doubt the most profitable piece of equipment ever installed in a clay plant.

Peace did not end the labor or transportation problems by far. Coal must be conserved, and the labor end controlled, so take the step now that will help insure maximum efficiency in your plant, and send for full facts about the Underwood Producer Gas System. We can save you money—let us show you how.

The Manufacturers Equipment Co.
Dayton, Ohio, U. S. A.

The Galion Industrial Unloader

Cuts Overhead-Increases Production

Saves 20 to 35 cents Per Ton

Unloading coal, coke, and similar materials from railway cars to storage bins, piles, or hauling equipment, at the rate of a car every 2 or 3 hours. Only one man required as operator - no shovelers needed.

Speeds Up Production

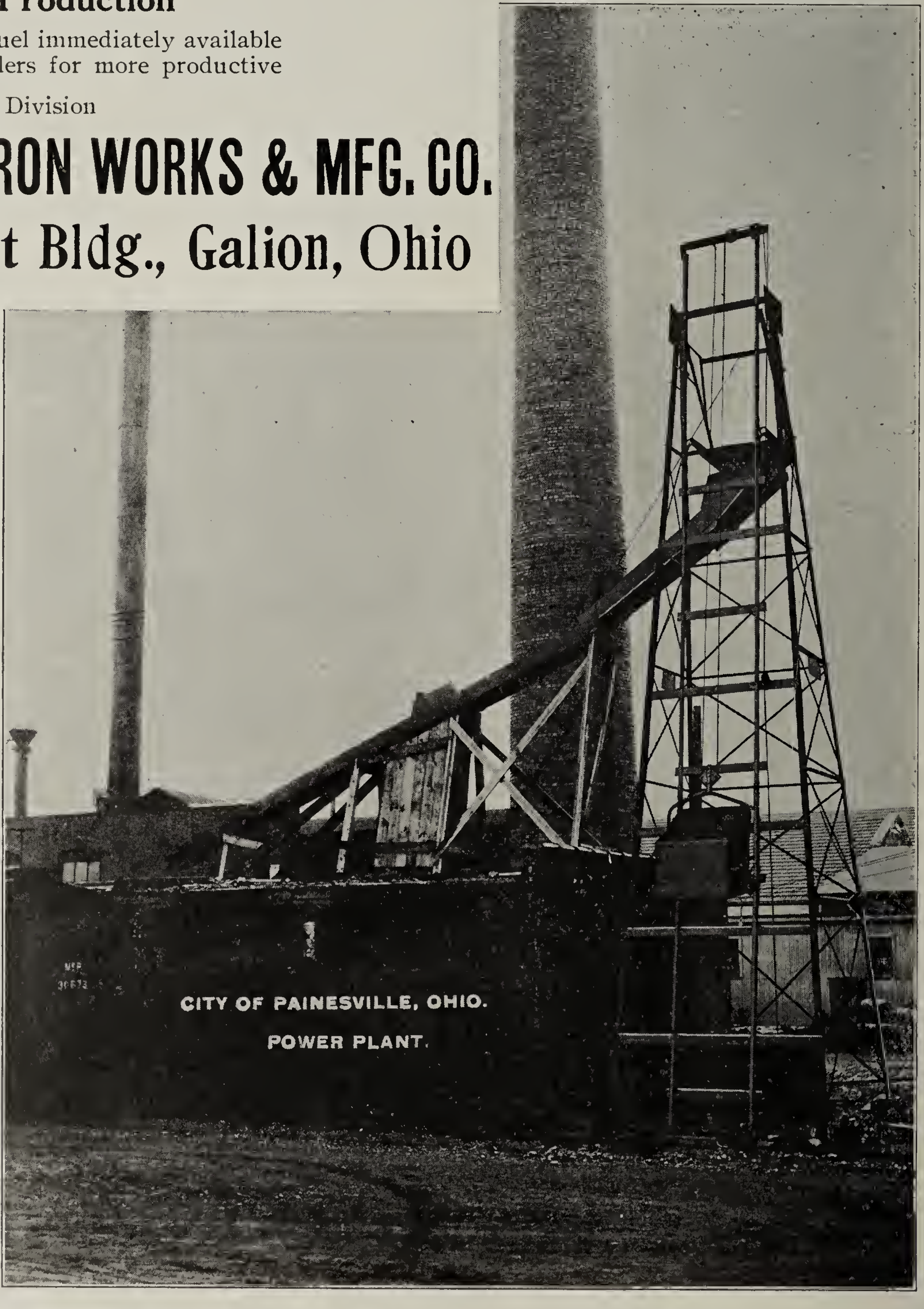
by making every car of fuel immediately available for use. Releases shovelers for more productive work.

Built In Several Sizes and Types

with or without storage bins. There's a size and type to meet every unloading requirement. Galion Industrial Engineers will consult with you, on your unloading problems. This service is free to Clay-working Plants and incurs on obligation.

Industrial Division

THE GALION IRON WORKS & MFG. CO.
204 Wyandot Bldg., Galion, Ohio



Saves:

Time,

Labor

and

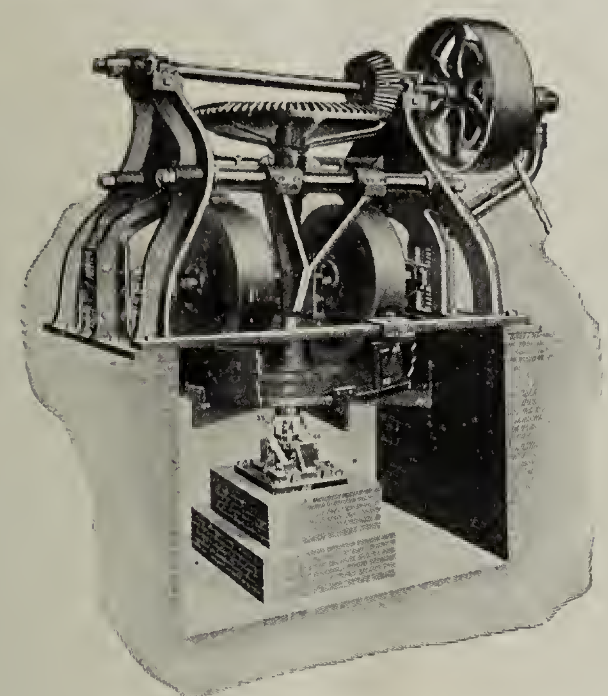
Money

—o—

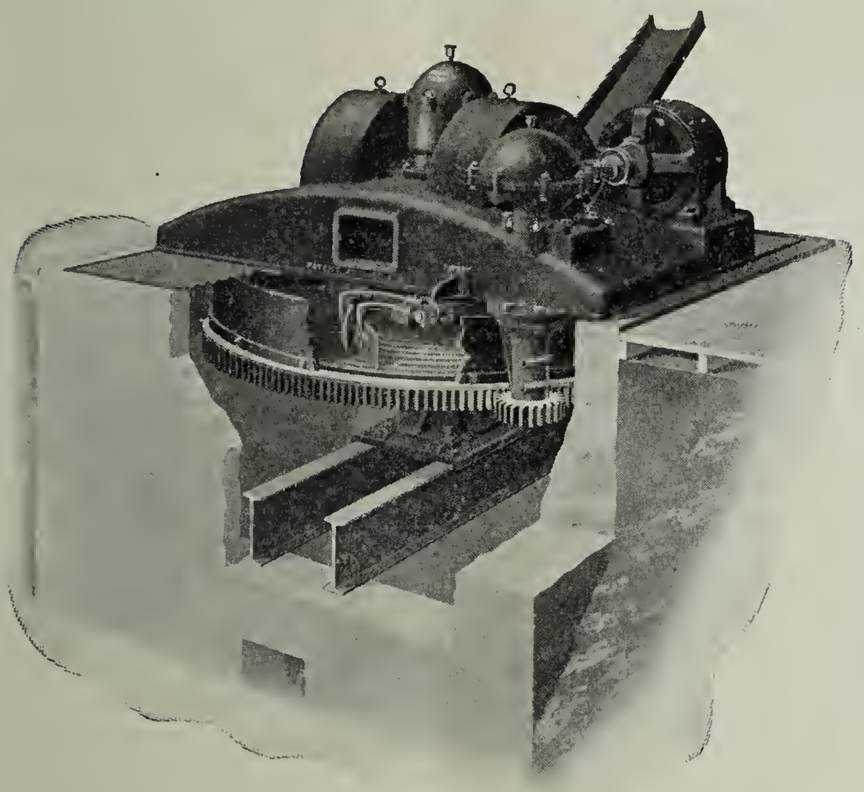
Write

for

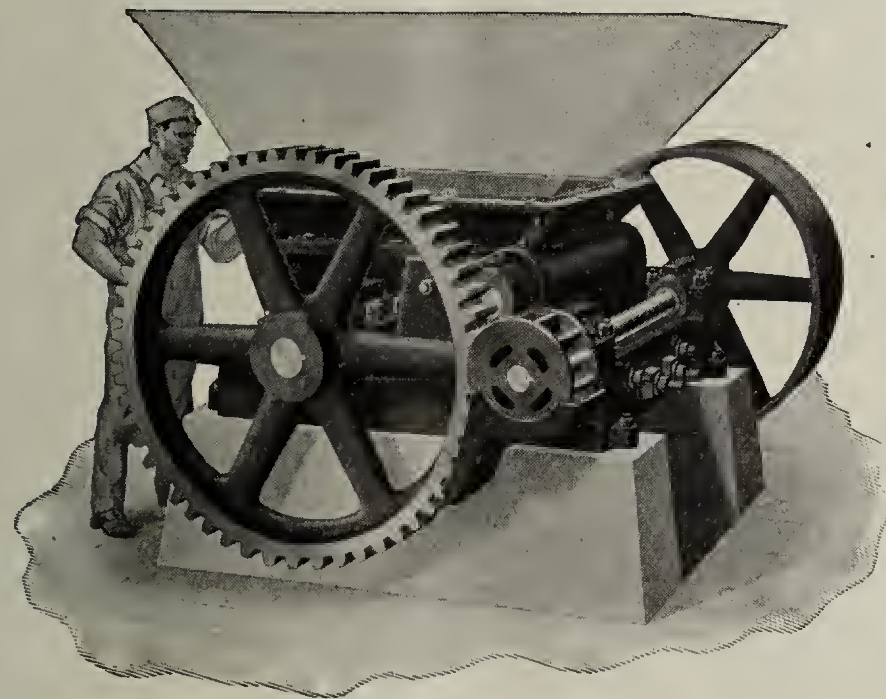
Catalog.



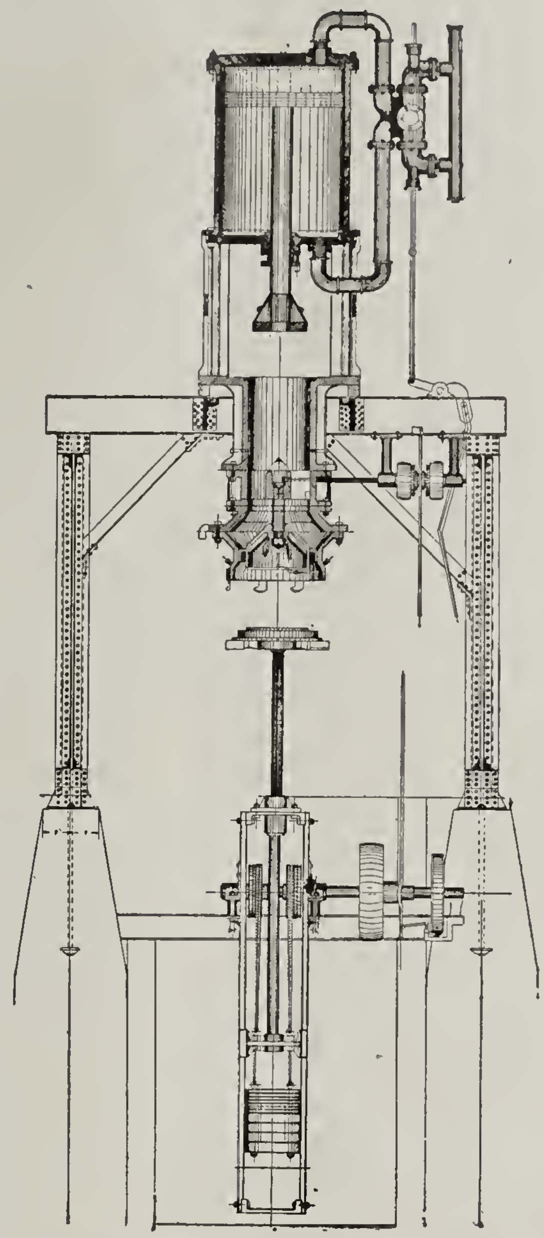
Standard Grinding Pans Made all Sizes



Model A-300 Step Bearing Type Dry and Semi Dry Grinding Pan



Single Roll Crusher



Sewer Pipe Press

Machines for
Crushing,
Grinding,
Pulverizing,
Empounding,
Tempering,
Mixing and for

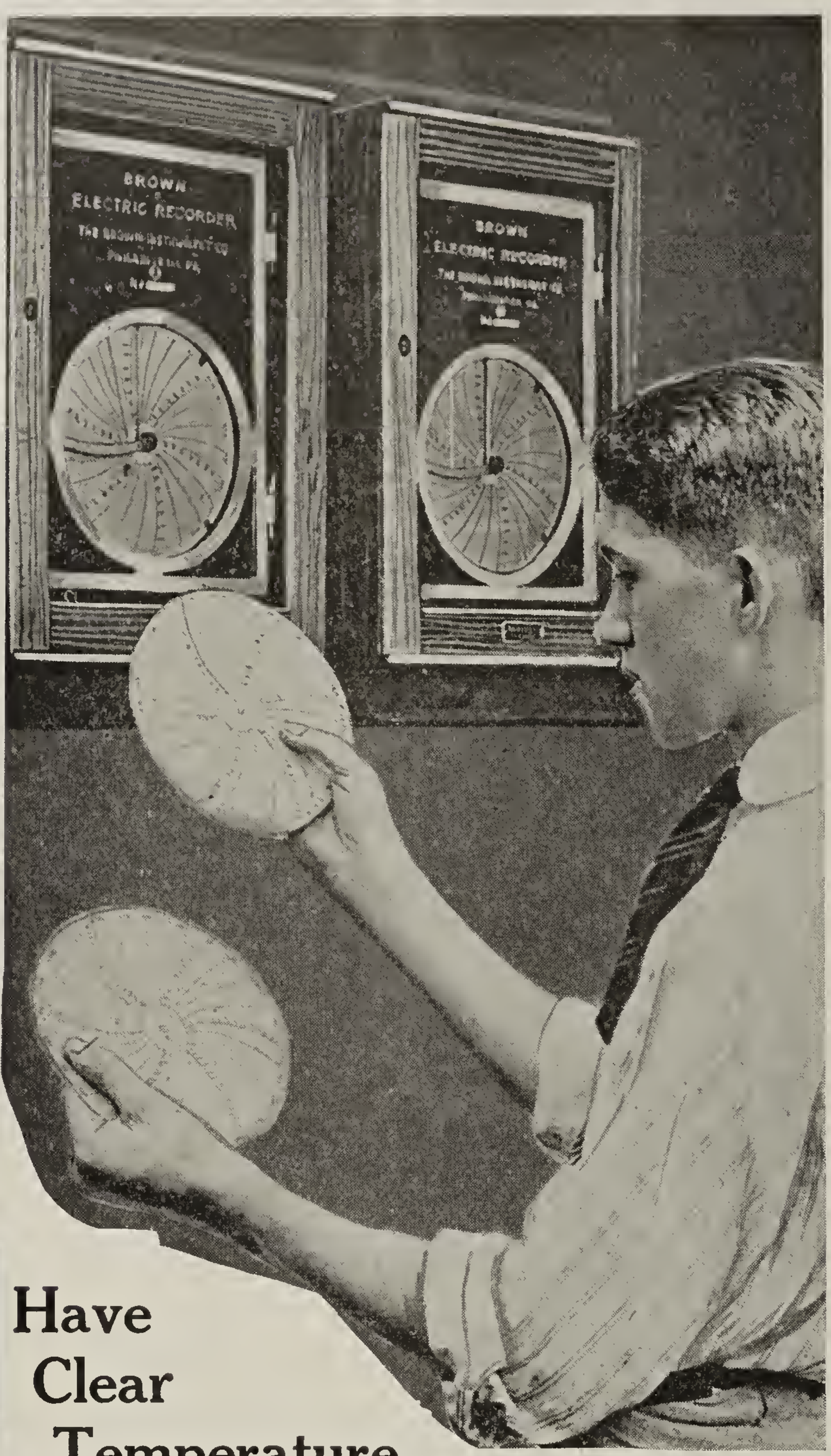
Elevating and Conveying all kinds of Materials.

Steam Presses for Making Sewer Pipe, Drain Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO.,

Gen'l Office and Works **Wellsville, Ohio**

Engineering and Western Sales Office,
Monadnock Bldg., Chicago, Ill.



Have Clear Temperature Records of Every "Burn"

Install Brown Recording Pyrometers and **record** the temperature every minute of each "burn." It will not only enable you to see that instructions are carried out, it will enable you to repeat the "best burn" of any kiln. That's how more than 300 of the biggest and most successful brick plants keep production at top speed, maintain A-1 quality and hold fuel consumption down to the minimum. Write now for complete information to The Brown Instrument Co., Philadelphia, or one of their district offices in New York, Pittsburgh, Detroit, Chicago or St. Louis.

Brown Pyrometers

The World's Standard Heat Meters

Written for The Clay-Worker.

PACIFIC COAST NEWS

ALONG WITH the rapidly increasing building activities throughout the entire Pacific Coast section, the opportunity for the manufacturer of the various brick and clay products to branch out and expand his business and to re-establish production to its pre-war state, has come, leaving no doubt in the minds of those connected with the industry, that a long period of unusual activity is ahead of them.

Brick is becoming an interesting factor here in this state as a building material and is becoming more widely used than ever before, perhaps. The growth of the automobile industry on the Pacific Coast, together with the establishment of many manufacturing plants of various kinds has created an unprecedented demand for brick to be used both for ordinary construction as well as installation purposes. In Southern California, the home of vigorous and optimistic publicity, the brick manufacturers are maintaining a steady, progressive advertising campaign with noticeably favorable results. Besides the long established use of brick in commercial buildings of permanent character, it is the aim of the manufacturers to bring it into broader use in the field of home building, etc. At any rate, it is noticeable that brick in house building is coming in for an increased share of prominence in communities of Southern California, and brick manufacturers are of the firm opinion that this situation is a direct result of the nation-wide publicity campaign launched not so long ago by progressive members of the industry.

A new and attractive display of the clay products of the Los Angeles Pressed Brick Company has been fitted up on the sixth floor of the Frost building, Los Angeles headquarters for the company, following along the lately evolved ideas of publicity and advertising. The elaborate exhibit of the products of one of the most progressive firms in the South embraces a complete and comprehensive showing of face brick, no less than fifty panels laid in various bonds and mortar colors, affording an almost unlimited selection; roofing, tile, architeetural terra cotta, hollow tile and quarry tile. The entire arrangement being one of unusual interest, will prove a great convenience to the architects who are able to make use of the display as well as to the general public. The exhibit is a revelation in colors, shades, textures and artistic designs, all blended into a harmonious whole.

Among the recent construction plans of considerable size which will be completed shortly in Los Angeles is that of a three-story steel and brick administration building to be erected for the University of Southern California at an estimated cost of $500,000. Brick is to be used in the walls, along with a pressed brick front and clay tile roofing.

In San Francisco a number of structures are going up at the present time in which considerable brick is being used. Sub-contracts are now being let by a local architect for the Oakland building of the East Bay Water Company, including a contract for terra cotta work to N. Clark & Sons of San Francisco.

The brick work to be used in alterations to a building on the southwest corner of Sansome and Jackson streets is included in the construction contract to be filled by J. Harold Johnson at a cost of $14,800. Architect J. C. Haldik of this city will soon take sub-bids on a four-story brick apartment house to go up in Larkin street near Post, as well as a $45,000 apartment house in Pine, near Stockton street.

A brick factory building is to be erected in Sacramento, Cal., shortly at a cost of $200,000. Plans for this structure are now nearing completion.

The P. J. Walker Co., of San Francisco, was recently awarded the contract for the erection of a $70,000 brick and concrete warehouse in Emeryville, Cal., to be used by the Western Canning Company.

Claud Hancock, proprietor of a brickyard in Riverside, Cal., recently completed the firing of over 600,000 bricks and states that he is greatly pleased with the Riverside product. The clay found in this locality is said to contain all the necessary features of excellent brick burning clay.

The Bakersfield Sandstone Brick Company of Bakersfield, Cal., reports a growing demand for its products. James Curran, manager of the concern, now employs from thirty to forty men at the plant which is located at Sonora and Franklin streets. The clay which this concern uses for making a good quality of smooth dark building brick and rough clinker brick is obtained only a block away. The finished product brings $14 per thousand, the same figure that San Francisco manufacturers are receiving for their material. The Bakersfield concern furnishes much of the brick used in local consumption. Among the recent contracts to be filled are brick for a new warehouse being erected in Gove street by A. H. Karpe, for an addition to the Oildale school, for the Bruce garage in Chester avenue, for the grammar school at Wasco, Cal., for the Cutter building at Corcoran, Cal., and numerous orders for Porterville, Cal.

A new $100,000 building is to be erected immediately in Modesto, Cal., to be occupied by the Thompson Company of that city. Brick will be used extensively in the construction of the store building.

After operating for only three months, the Inland Empire Pottery Company of Spokane, Wash., has proven itself to be on a remarkably well paying basis. The company is now operating two kilns, turning out a fine quality of glazed white stoneware and flower pots. This concern is covering the territory embraced by the states of Montana, Idaho, Washington, Oregon and part of California, and report that demand for its products is steadily growing.

A new school building planned for the Thousand Oaks tract in Berkeley, Cal., will use hollow tile and stucco to a large extent. About $65,000 will be spent on the new building.

P. McBean and Atholl McBean of the Gladding-McBean Co., returned to headquarters in San Francisco after spending several days at the factory in Lincoln, Cal. Operations are once more under way at the Lincoln plant and after a period of more than eight months, the firm is again in a position to fill orders.

SUNSET.

RANDOM REFLECTIONS.

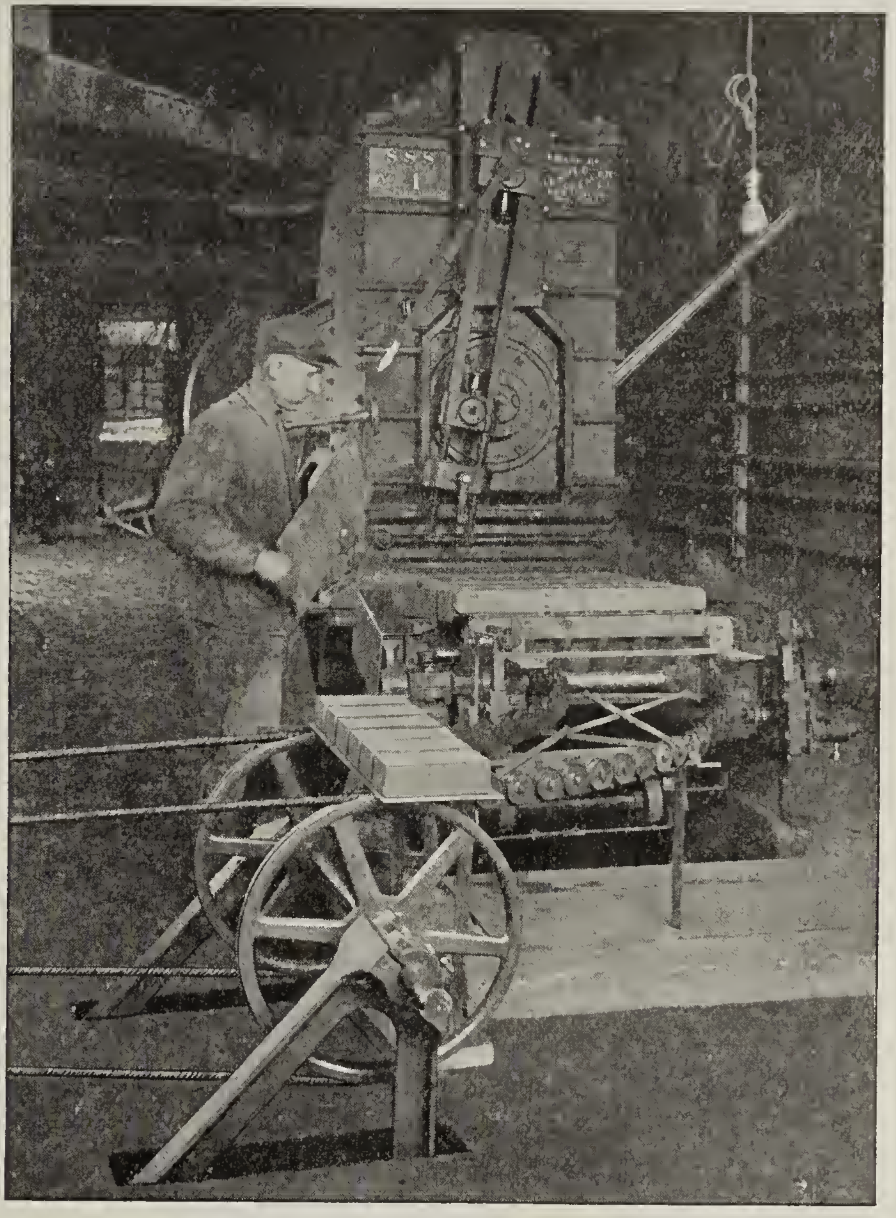
It is interesting to note in the daily news reports that big insurance companies are now inclined to put their surplus funds into modest home loans instead of in big building undertakings of their own as in the old days.

We know that second-hand brick makes up one kind of junk pile that it is easy to make use of, but that is not the only valuable scrap heap, for our Geological Survey tells us that the national scrap heap yielded last year $57,039,706, this being the value of metals of all kinds recovered from scrap.

The silo business which has heretofore been confined largely to dairy farming is now spreading out into the broader field of beef cattle feeding. This naturally opens up a much wider field of prospects for the silo material business, a field in which burned clay has a chance to be an important factor.

We have had a whole lot of fuss and argument about establishing a national trademark with but little in the way of definite results. Really once we establish national prestige through the quality of goods and service the markings of identity will come pretty near taking care of themselves.

The S. S. S. Special
Automatic Soft
Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

Classified Advertisements.

FOR SALE.

AN ATTRACTIVE OFFER.

I have for sale in the state of Illinois, two valuable clay properties with inexhaustible supplies of red and blue shale, as well as fire clay of the very best quality. The first has eight down-draft kilns of 10,000 brick capacity each, connected by tunnels with a brick stack 100 feet high. The plant is complete with modern machinery ready for operation for the manufacture of vitrified brick. Also one Vulcan steam shovel worth $20,000.

Thirty-five acres of land, underlying which is a bed of blue shale 80 feet thick. Under 20 acres of this is a 6-foot vein of coal. Switches and tracks to railroads, convenient to markets.

Cost originally, $260,000. **Can be purchased for $100,000.** Can commence manufacture of brick at any time.

The other plant consists of 240 acres of land in fee, with a 30-inch vein of coal immediately over an inexhaustible supply of red shale and very best quality fire clay (see Geological Report of State of Illinois). Coal, shale and clay delivered to plant on inclined railroads from adjoining mines. In addition, the owner has mining rights in fee of 1,050 acres with deposits of coal and fire clay, also 440 acres leased land. No hoisting necessary. Plenty of brick buildings for employes. This plant has 10 down-draft kilns of 1,000,000 brick capacity—all in first-class condition. This plant represents an investment of $400,000. **Can now be purchased for $50,000.** This plant would need new and modern machinery.

Both the above properties were shut down and passed through receivership at the outset of the European War. Full information to anyone interested supplied. In the hands of the right parties, either can be operated at a profit of $100,000 per annum.

CHAS. A. VALLETTE,
412 Central National Bank Bldg.,
10 1 cm St. Louis, Mo.

FOR SALE.

One Freese automatic side cutting table with five separate platens, each cutting the sizes 2⅜, 2½, 4, 4¼ and 8¾ inches. Cutter in first-class condition. Also one Bensing end cutter, and Bensing tile and block cutter. Address,

CUTTER,
10 1 d Care The Clay-Worker.

FOR SALE.

UP-TO-DATE BRICK AND TILE PLANT.

A modern plant equipped with machinery to make brick and building tile. There is an inexhaustible supply of excellent shale and clay with abundance of water and railroad siding in the plant. No dryers or kilns have been built, but the necessary brick and tile for same can be made. Present owner not a brick man, and wishes to dispose of the plant on reasonable terms. Coal land adjoining can be purchased or leased. Plant is well located in desirable territory, with good shipping facilities to Indianapolis, Cincinnati, St. Louis or Chicago, and intermediate points. Coal, shale and clay of high grade. Address,

MODERN,
10 tf d Care The Clay-Worker.

WANTED.

Superintendent wants position, practical experience in manufacturing of building brick, fire brick, vitrified paving brick and hollow interlocking tile. First class testimonials. Apply,

J. CUFFIN,
Y. M. C. A., 822 S. Wabash Ave.,
9 1 p Chicago, Ill.

Trenton Makes
The World Takes

The Buckley System

Ceramic Equipment Co.

Trenton, N. J., U. S. A.

Manufacturers of

Automatic Stove Room
Automatic Mangles
Humidity Dryers

Clay Drying Specialists

Jos. L. Buckley
General Manager

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. 72. INDIANAPOLIS, NOVEMBER 1919. No. 5.

INDUSTRIAL RESEARCH:

The New Home of the Ceramic Division of the U. S. Bureau of Standards where the Important work of Standardization of Structural Clay Products will be Carried on Under the Direction of Dr. S. W. Stratton, Director of the Bureau, Dr. A. V. Bleininger, Chairman of the N. B. M. A. Committee on Technical Investigation, and a Corps of Experts.

THE BUREAU OF STANDARDS has completed its new laboratory, designed for industrial research, which probably is the largest building, equipped for this purpose, in the world. The major portion of it will be occupied by the structural materials, clay products and glass laboratories. The structure is located near the group of the Bureau buildings on Connecticut avenue, but separated from them by a street. This situation is almost ideal for research purposes, away from disturbing influences and yet easy of access from the city.

View of the New Laboratory of the Bureau of Standards, Washington, D. C., Photographed for The Clay-Worker by a U. S. Aviator.

The building is severely plain in style, of reinforced concrete and brick, affords an abundance of light and ample space for all the numerous operations. It has four stories, is 350 feet long, 50 feet wide, and has three wings, each 100 feet long and 50 feet wide. Between the wings two large covered court areas are available for the use of heavier machines, shops, etc.

The first photograph shows the appearance of the building from one corner, and the second, taken from an aeroplane, the general layout. Behind the building, parallel with the main front, a kiln house, 350 feet long and 50 feet wide, has been erected, with a brick stack at the center, 110 feet high. In the second photograph the new building will be seen at the left, as viewed from the rear.

The building is of fireproof construction throughout. The heavier operations involving the use of weighty machinery will be conducted in the court areas and in the middle wing, which is one single, spacious hall, with galleries, in which the large testing machines are to be housed. The clay-preparing machinery, of which a very complete line has been installed, is located in one of the courts. The equipment will include practically every type of machine, dry and wet pans, blungers, filter presses, etc. A traveling crane permits of handling machinery easily, and is available also for such operations as the casting of heavy clay ware. The pottery and general ceramic workrooms occupy space on the first floor of the front part of the building, and are equipped with all the necessary apparatus. The machines are driven either direct from motors or by means of silent chain drives. Compressed air, water, steam, vacuum and electrical lines are available. Vacuum apparatus is used for removing dust. The store rooms are also located on this floor. The laboratories for physical investigations, microscopic work, optical studies of glass, optical glass grinding, thermal studies, etc., are located on the second floor. Here are to be found also the division and section offices, library, workrooms for the study of basic mineral products, like cement, lime, magnesite, gypsum, etc. It is unnecessary to enumerate the scientific equipment available for these purposes, and it suffices to say that it is complete in every respect. On this floor are located also the rooms of the enameled metal section, a branch of work rapidly growing in magnitude and importance. Ample space is provided for the study of other structural products, like steel, cast iron, concrete, stone, etc. On the third floor a series of chemical laboratories are available for general and special researches.

Besides the structural materials divisions, the building is occupied by the textile, paper, leather and rubber sections. Thus, for instance, a complete paper-making equipment has been set up, with conditioning rooms and all necessary appliances. Similar equipment is provided for the textile and rubber sections. It will be possible, therefore, to study every operation involved in these manufacturing processes.

One of the outside wings contains the store and weighing rooms of the glass section, with space for the examination and sorting of glass.

S. W. Stratton, Director of Bureau of Standards, Washington, D. C.

The kiln house at the back of the structure contains the furnaces and kilns of the clay, glass and cement sections. Eight kilns and furnaces have already been built for ceramic purposes and ten more are to be erected, involving all the operations from high temperature work, by means of recuperative and regenerative kilns, to the melting of fritts and the firing of muffle colors. The enameled metal section has there also its melting furnaces and muffles.

The cement section is about to set up a rotary kiln and the grinding equipment necessary for operations dealing with the manufacture of Portland and other cements.

The Bureau still maintains its branch at Pittsburgh, where the big testing machines are installed, as well as its ceramic laboratory, but the bulk of the work will be transferred to Washington.

With the completion of this great laboratory, devoted entirely to technical research, the country will have available an institution which should render important aid in the further development of our industries.

No matter what figures may be set up as representing the original cost of construction with the different kinds of material, it is building with burned clay products which proves most economical in the end.

ARE BRICK MANUFACTURERS NEGLECTING FOREIGN TRADE?

Alfred Thomas Marks.

WITH A LARGE PART of Europe facing the necessity for immediate reconstruction—with Latin America importing our bricks and brickmaking machinery on a greatly increased scale—with practically the open door in all countries—our United States manufacturers of brick, both building and fire, should no longer delay a thorough investigation of the foreign markets. This is the message the United States Bureau of Foreign and Domestic Commerce is anxious to have reach our American brick manufacturers, in the hope that we may immediately take the necessary steps for the cultivation of the overseas trade.

It is conceded by those who are closest to the proposition that, even though our exports of building and fire brick for the past year ran well over five millions of dollars, practically all of this trade "came without calling"—in other words, that these sales were made without any effort on our part to speak of. Now, this being true, what could we do if we entered into a vigorous, energetic campaign for the brick trade of western Europe and Latin America?

The writer asked this question of one of the officials of the Bureau of Foreign and Domestic Commerce. In reply he said:

"Our brick manufacturers are making absolutely no effort to cultivate foreign trade, although at this time the opportunities are practically unlimited. It is true that in past years we have not been able to see much in this trade, in view of high ocean freights, scarcity of ocean tonnage and strong competition abroad. But now conditions are almost exactly reversed. We find greatly increased shipping facilities, released from war's requirements, with a substantial lowering of rates; we find a waiting market in France and Belgium, where building reconstruction is being undertaken; we find no bricks going into South America from Europe, due to the present pressing demands in European countries—and Latin America makes no brick of any kind. Now, these conditions are not permanent, which makes it all the more advisable that our brick manufacturers make haste to get a firm foothold in the overseas countries while we do not have to fight competition at the same time. We cannot start too soon."

A brief glance at our present foreign trade in brick will show the wonderful start we have in the race. It should be borne in mind that the figures given below are an advance of nearly 100 per cent. over the preceding year's exports:

Building brick exported from the United States to all countries in the year ended June 30, 1919.....$ 141,600

Our two best customers were Canada, which country bought bricks to the value of $86,000, and Mexico, where we sold $22,000 worth.

Fire brick exported from the United States to all countries in the year ended June 30, 1919........$5,128,000

These were sent to practically every country, Canada taking $3,712,000 worth, Cuba $361,000, Mexico $278,000, Chile $168,000, France $102,000.

BUILDING SITUATION AT THE NATIONAL CAPITAL.

Washington and the surrounding district is enjoying a building boom of no little magnitude, but the coal strike now in progress has caused anxiety among brick and terra cotta men who have not received their consignments. Orders of long standing have been held up for various reasons, and the re-creation of the Fuel Administration sent a chill through the spines of local dealers. Memories of last winter's "non-essential" list were still fresh. This feeling of pessimism melted, however, before an order issued by Director Garfield by which individual cases and not industrial groups will be considered when appealing for coal. According to this latest order, the course for a brick concern to pursue is to communicate with the Federal Manager of Delivering Carriers, of the railroad line on which his plant is situated. He is the court of last resort.

Work is now progressing upon the largest of Washington's apartment houses. The first of these is the Hadleigh Court, located at the corner of Sixteenth and V streets, Northwest. The architect is A. P. Clark, Jr., and the Boyle Robinson Construction Company are the builders. The specifications call for 100,000 face bricks of golden rough texture, furnished by the Gloninger Co., of Pittsburgh, and 60,000 white brick provided by the Kittanning Clay Products Co., of Bradford, Pa. The Atlantic Terra Cotta Co., of this city, will supply the ornamental terra cotta.

A Close-up of the New Laboratory of the U. S. Bureau of Standards, Washington, D. C.

A few blocks east of the above building, at Sixteenth and R, work is being rushed on the Chasleton apartment. The Whitaker-Greer Fireproofing Co., of Waynesburg, O., has the contract for 100,000 feet of 8 inch backing up tile. Both apartments will be opened early next spring.

Washington brick representatives report a good many inquiries for future work, although the soaring prices of labor make stone a strong competitor.

In commenting this week upon the brick industry in the District of Columbia, W. A. Mills, a leading Washington terra cotta representative, said: "It was only a few years ago that 160,000,000 brick were manufactured and used in the District of Columbia and territory immediately surrounding. Due to exhausted clay deposits and other minor causes, this splendid output has been cut to barely 60,000,000. Due to the very low prices in vogue in those days, the old companies went out of business rather than remove to new sites close to undeveloped deposits. In four years brick products here have increased over 100 per cent. in price. Eleven yards were in operation five years ago, while but four survive today." These concerns are the Hydraulic Brick Co., Washington Brick and Terra Cotta Co., West Bros., and the Virginia Brick Co.

The Hydraulic Pressed Brick Company reports business throughout the south to be in a healthy condition. Small orders are coming in from many quarters, especially from Florida and Virginia.

OVERTIME OUTRAGES.

The secret is now out about the reason for time and a half and double time for overtime work after an eight-hour limit. It has been argued in the past that this was a sort of penalty to prevent the working of men overtime. Circumstances of the day prove that it is a game by which workers already highly paid expect to increase their pay roll. For example, the monthly bulletin of the Building Construction Employees Association of Chicago, for November, lists bricklayers pay as $1.00 per hour, with time and a half for overtime. The carpenters are listed at $1.00 an hour, with double time for overtime. Also there is a report showing that the men are demanding that the contractors work on Saturday afternoon and Sunday so as to get double time for those days. In other words, there is a scarcity of mechanics and they insist upon overtime for the double wage. Otherwise those who refuse to do overtime work and pay the extra wage involved therein find it hard to get help. This makes the overtime penalty simply a lever to extract higher wages and increase construction cost.

One of the undemocratic things about unionism is the demand for the "closed shop."

Written for The Clay-Worker.

BELLEEK POTTERY.

Interesting Facts Regarding the Past History and Present Status of One of Ireland's Foremost Ceramic Plants.

THE ANNOUNCEMENT that the Belleek Pottery was for sale, recalls one or two interesting circumstances in connection with its establishment over fifty-eight years back. You could not have lived in Ireland in the intervening years and yet remain unfamiliar with the well known trade mark—the harp, the wolf-dog, and round tower—upon half the china, delph, and ornaments that decorated and beautified so many Irish homes. Belleek, situated almost at the junction of Donegal, Fermanagh and Leitrim, has the distinction yet of being Ireland's only pottery.

Its story is something like this:

About the year 1858 a small farmer in County Fermanagh, named O'Connor, came upon what he thought to be an extinct limekiln in his farm. The dazzling whiteness of his walls, and more particularly their lustre, attracted the attention of the local landlord, a Mr. John Caldwell, who had borings made at other points, when he discovered a remarkable white clay, which judges of such things pronounced to be feldspathic, then and now, used in the production of Chinese porcelain.

He knew the proprietor (an Irishman, too) of the Royal Porcelain Works, Worcester, who submitted the clay to the usual experiments, until he grew quite enthusiastic over it. There comes upon the scene at this point a Mr. Armstrong, a London architect, who hied him over to Castlecaldwell, and in his turn, found that the land thereabouts contained, in addition to the feldspar, an excellent white quartz, a requisite in pottery-making. As he prospected around he beheld the Erne thundering over its falls, and realized at once the possibilities, from a commercial point of view, placed within his reach by nature.

It does not appear that Armstrong had much capital himself, but he interested a notable Dublin man in the new venture. A Mr. D. M. Birney, a Dublin draper, who, from an humble beginning, had risen to wealth, decided to finance the concern. It was a brave and patriotic undertaking. The main building alone, faced with cut sandstone, at least 40 feet in depth and 160 in length, and three stories high, cost about £32,000 to equip. He put in Armstrong as manager and designer, and the latter utilized the profits (no small sum) to erect additional kilns, and a number of subsidiary buildings at the rear. The original workers came from Staffordshire, but none of them remain today. There were in 1882 about 120 employes, and everything was going well.

Meantime, Armstrong had been busy with designs for the parian or ivory ware. Like the true artist that he was, he chose the simplest forms. To the Donegal sea shore close by he went for the star-shaped and wheel-shaped outlines. His tea cups were coral shells; the vivid green of the seaweed showed up in marked contrast to the glistening ivory of the body. There were the four-fingered star fish, the sea urchins, and many-shaped shells. One can hardly suppose that he found the mermaid type at Bundoran, even fifty-eight years ago, however, he might fare in that respect now-adays, and the sea horse and dolphin were, presumably, extinct for some little time. But wherever he went he found beautiful figures and forms to adorn his pottery; now a fern, again a rose cluster, a chrysanthemum, or the passion flower. The sparkling irridescence of glazed ground added to the charm of design and lightness of body, put the Belleek productions in a niche of their own. They had no compeers and few competitors.

In the spacious rooms the workers are seen gilding, lustering, ground laying, tinting and painting. One instinctively recalls old Omar and the potter who was "kneading his wet clay." The engraving upon plates, the printing of the colored designs, and their transfer to the articles are instructive and delicate processes. They produce a coral tea service so thin that it is possible to read through the transparency. The five directors are shopkeepers in Fermanagh, Derry, Donegal and Tyrone, but none of them possess work or management.

They won gold medals for their exhibits at Paris in 1887, Melbourne 1880, Dublin in 1865; they have made tea sets for princes of the blood and princes of commerce, like Lipton, Indian, Rajahs, and so forth. Their fame is world wide.

In October, 1882, M'Birney died, and in the February following Armstrong passed away. Belleek was thus faced with a double calamity. It seemed, indeed, for the moment as if the new industry would collapse. At this stage there was invested in it about £60,000.

A local company was formed to carry on the work. The clergy and the bishops of the three neighboring dioceses raised a good deal of the necessary capital. The purchase price being paid, they extinguished the head debt for a further payment of £1,000 and added land sufficient for additional extensions or buildings. From that time until the present the pottery has been run by the company after an old-fashioned, easy-going manner.

The directors have had more money, seemingly, then they could utilize, for a recent balance sheet shows an investment of over £1,000 in Great Northern Railway 4 p. c. stock. They did not advertise, for they were in the happy position of having more orders than they could execute.

Wherever the blame lies, the fact stands out that the 200 workers who found employment there thirty years ago have dwindled down to sixty today. I think the directors have grown "tired" in an industrial sense, for it seems ironical to find a concern with more orders than it needs, a dwindling output, and a considerable sum invested elsewhere at 4 per cent. The truth, perhaps, is that the directors only took up the burden from a sense of duty to the locality and the workers. They have been importing the stone from Cornwall and feldspar from Sweden in later years. Yet in the company's office is a vessel of beautiful "body" produced experimentally, from a plentiful clay raised only four miles away. It is only fair to them to say, however, that the Castlecaldwell mines from which their feldspar used to come, have not been worked for many years until recently and the pottery people were not sufficiently enterprising to work them of their own account.

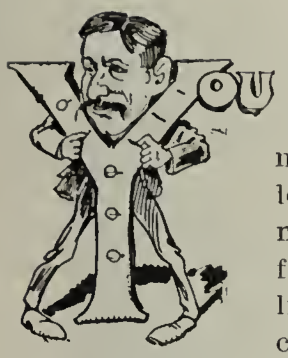
What is needed now is a "live" man or syndicate who will renovate the place, scrap a very little of the plant, and add to it a few more modern machines for producing the commoner wares speedier and cheaper than they can be turned out today entirely by hand. Some offers for purchase are being considered, but the proprietors do not want the concern to drift into rival hands, who might close it up, or utilize it for quartz crushing or something different from its present purpose, to the great detriment of the locality. The directors with their own affairs and places to superintend personally, have discharged an obvious duty for many years; they feel, with some reluctance, perhaps, that the time has now come for a change. Anyhow, the Belleek Pottery is for sale.

INSURGENT ARCHITECTS.

Insurgent architects may do some freaky and foolish things now and then, but just the same they are the fellows that deserve credit for many of the new ideas which add spice and variety to the building business. It was insurgency in architecture that made possible the modern skyscraper.

BUTTON HOLE TALKS.

A Question of Sheep or Lawn Mowers.



YOU CAN take it from me, Old Jim was some resourceful. He had the stuff in that old head of his, and my memories of him are enjoyable. He would have made a big mark for himself, too, if only he could have let whiskey and politics alone. There were no empty spaces in his skull, it was chuck full of real grey matter, but there was a little weakness in the whiskey and politics compartments. Otherwise it was all there and available when required.

I remember once one of the boys wanted to get something from old Judge B. and, knowing of Jim's relations with him, thought they would work it out through him and so got him to go after it. Jim took the trail after the Judge but had trouble finding him. The Judge was also a devotee of the cup that cheers but gets you and had been holding a celebration and was in hiding while recovering. Jim finally located him. The interview was entirely informal, the Judge wearing his night shirt only. The Judge had the peculiarity that while whiskey went to his legs and most parts of his body, it did not smear his brain, he didn't do foolish things even when drunk. He saw Jim coming and knew he was after something. He couldn't dodge him but he wasn't going to take chances of being caught, so he welcomed him exuberantly stating that he was just the man he wanted most to see and whose advice he was most anxious to obtain. He told old Jim that he was most anxious on a matter of most vital importance that must be decided at once and that his—Jim's—counsel was most opportune. He said that his boys had gotten him to buy a big place out in the country that had a lot of lawn and that the situation, as he sized it up, was that now, having this place on his hands, it was up to him to decide whether he would buy two sheep or a lawn mower to keep the grass down. Said he had passed a sleepless night thinking over the matter and couldn't make up his mind. Said the lawn mower would require his hiring a man to run it, would consume oil and need repairs. Said that the sheep would take care of themselves, pretty much, would yield wool and increase, but that they might bite people and get him into trouble. He sat there with the morning breeze waving the fringe of his night gown and argued with Jim for hours on this question, with Jim always trying in vain to introduce his own business, until he tired him out and sent him away dazed and wondering, and the question of the sheep or the lawn mower still under debate. And the wily old Judge chuckled as he tucked his night shirt about his legs and resumed his slumbers." GATES.

SHORT COURSE IN CERAMIC ENGINEERING AT ILLINOIS STATE UNIVERSITY.

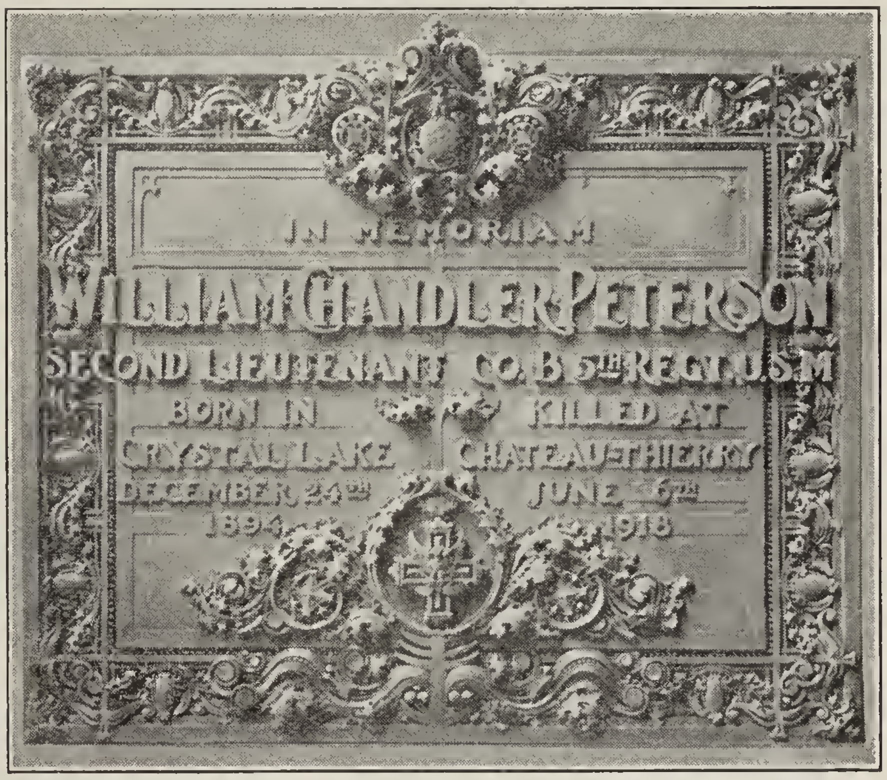
The Department of Ceramic Engineering of the University of Illinois is engaged in making preparations to give a two-weeks short course in Ceramic Engineering in March, 1920. Owing to the meetings of the National Brick Manufacturers' Association and the American Ceramic Society being scheduled for the last two weeks in February, the dates for this short course, which was originally planned for February, have been fixed for from March 1 to March 13. This short course will follow in general the same lines as the short course given in 1918 and will include lectures and laboratory work in the physics and chemistry of ceramic materials and processes; mining, sampling, handling and testing of clays; shaping, drying and burning; machinery and equipment for the ceramic plant; refractories, glass, glazes, and etc. The complete program of the course will be ready about January 1 and will be sent free to all who apply for it. The course is open to any person interested.

STANDARDS AND WALL TILE.

The National Federation of Construction Industries in its propaganda for standardization includes in the list of things needing standardization, to eliminate useless variety, wall tiles.

It seems that there is useless time spent in sorting tile because of the slight variation in shades and much of this trouble and expense could be eliminated by standardization. There is undoubtedly room to eliminate some of the many distinguishing classifications of wall tile. Just how far this idea of standardization may be carried without seriously interfering with choice and taste in the development of architectural ideas and beauty is a question. There is not, however, much likelihood of going to such extremes as will bring this question to bear.

The main need of the day is for some standardizing influence which will help eliminate some of the confusing variety and thus reduce cost and trouble.



A BEAUTIFUL MEMORIAL TABLET.

THROUGH the courtesy of W. D. Gates, President of the American Terra Cotta & Ceramic Company, Chicago, we present to our readers a photo of a beautiful memorial tablet executed in terra cotta. Mr. Peterson, for whom it was designed, before enlisting in the army, was employed at the factory of the A. T. C. & C. Co. He joined the U. S. Marines, and was among the first to fall at Chateau Thierry. This tablet was installed in a school building which Mr. Peterson had designed, in his home town. The tablet is the work of his former associates in the terra cotta business, and was wrought out by the hands of his fellow workers lovingly and tenderly. Sentiment does sometimes have a place in business.

We learn that this year marks the 100th anniversary of the death of James Watt, of steam engine fame. When we think of the part steam has played in our industrial progress we feel like the occasion should have been celebrated in this country as well as in England.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART XLIII.

COMPARTMENT KILNS—Continued.

The Underwood compartment kiln has no openings through the division walls. In all compartment kilns the draft flue is centered in each compartment and connects with a main draft flue outside the kiln walls. The hot air, or combustion gas, is collected in perforated floor flues and carried forward through the division walls thus connecting the several compartments. The Underwood kiln collects the air or gas in the usual manner, but when the division wall is reached a flue parallel to the wall carries the air outside the kiln wall into an air main and it is brought back into the kiln through a similar flue on the opposite side of the wall and delivered through ports into the bases of the bags. The main gas flue is underground outside the kiln walls, and the gas is delivered under the kiln through a cross flue for each compartment in front of the bag walls. The gas and air delivery flues are superposed—the former being underneath and from it the gas is conducted to the gas ports in the division walls as shown in Fig. 169.

The operation of the air flue is similar to that of an advanced heating flue. A compartment, or any number of compartments, may be by-passed should it be necessary to do so for repairs, or should it be desirable to partially isolate a burning compartment for reducing conditions or salt glazing. When the burning has advanced to the point where reducing conditions are desired, or for salting, the air supply to the burning compartment could be reduced to any required degree and by connecting this compartment with the main draft flue and disconnecting the air escape, the operation of the compartment in question would, except in the air supply, be independent of the other compartments without in any way interfering with the operation of the latter.

The Richardson kiln is a double fired compartment kiln shown in Fig. 170, section, Fig. 171; plan, Fig. 172, section through the gas connections, and Fig. 173, sectional perspective.

As will be seen from the plan the under floor system consists of alternate open and covered collecting flues with the usual central draft flue in each compartment.

The collecting flues are arranged in a staggered manner —the continuation of an open flue in one compartment becoming the closed flue in the following compartment. Each flue includes two compartments within its length. The open end collects the air, and the covered end in the next compartment delivers the air to the combustion bags. The combustion gases are similarly collected and carried to the heating-up and water-smoking compartments, and finally are drawn off through the draft flue in the most advanced compartment. Back draft is prevented by pasting paper to form a cover on top of the bags in the compartment ahead of the

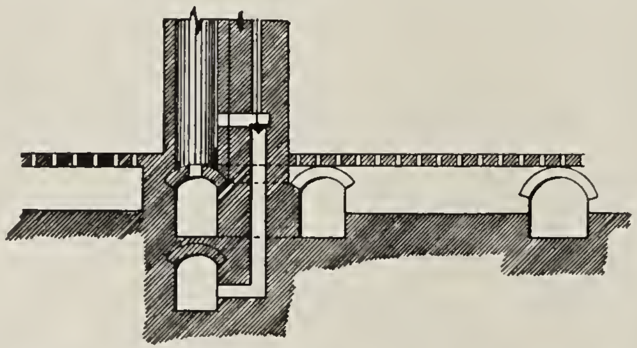


Figure 169.

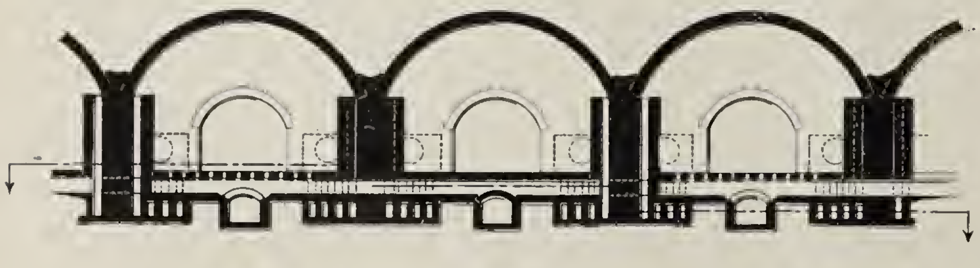


Figure 170.

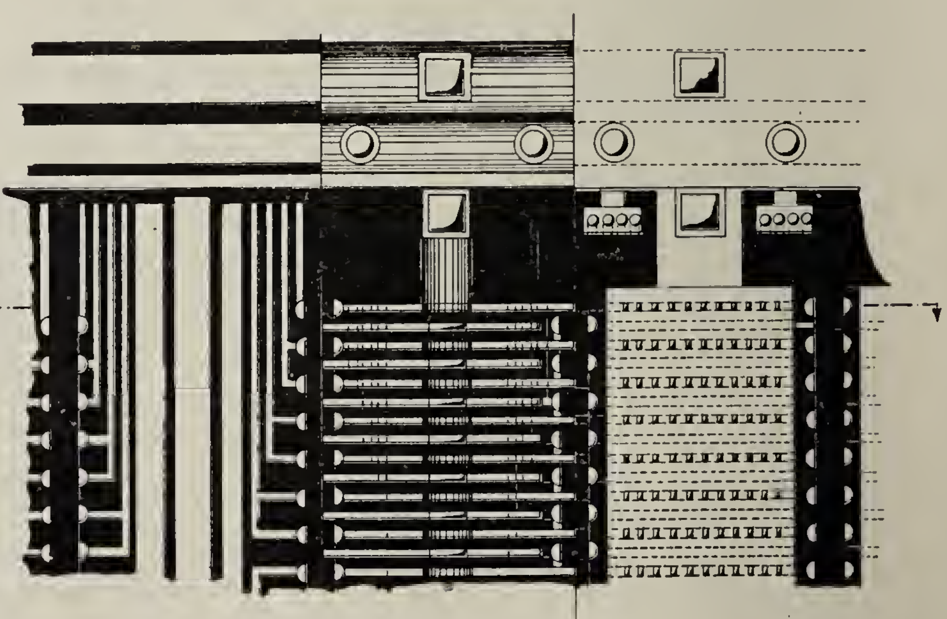


Figure 171.

draft connection and this method of dampering continuous kilns is common practice in both the compartment and the tunnel type of kilns.

The main gas flue is outside the kiln wall and a series of small flues, underground, on each side of each compartment, parallel with and adjacent to the division walls, deliver the gas into the bags under the air. Each small gas flue serves two bags (except the flues supplying the end bags) and each air collecting flue likewise serves two bags.

The gas connection, admission, and distribution, is shown in Fig. 172.

The Legg design is illustrated in Fig. 174, plan, and Fig. 175, sections. In several of the compartment kilns one can readily trace a development from an earlier kiln, and there is a marked similarity in the general arrangement of the several flues which constitute the kiln, and in the operation of the kiln. The Legg kiln is a distinct departure from this general plan.

It is double fired as will be seen from the plan and the gas is introduced from the outside through the kiln wall into the bag space on each side of each compartment. In each compartment there is a longitudinal draft flue as usual. The hot air for combustion is drawn down through a perforated floor into the draft flue and from this is carried forward through a flue at each end and delivered from below into the bag space.

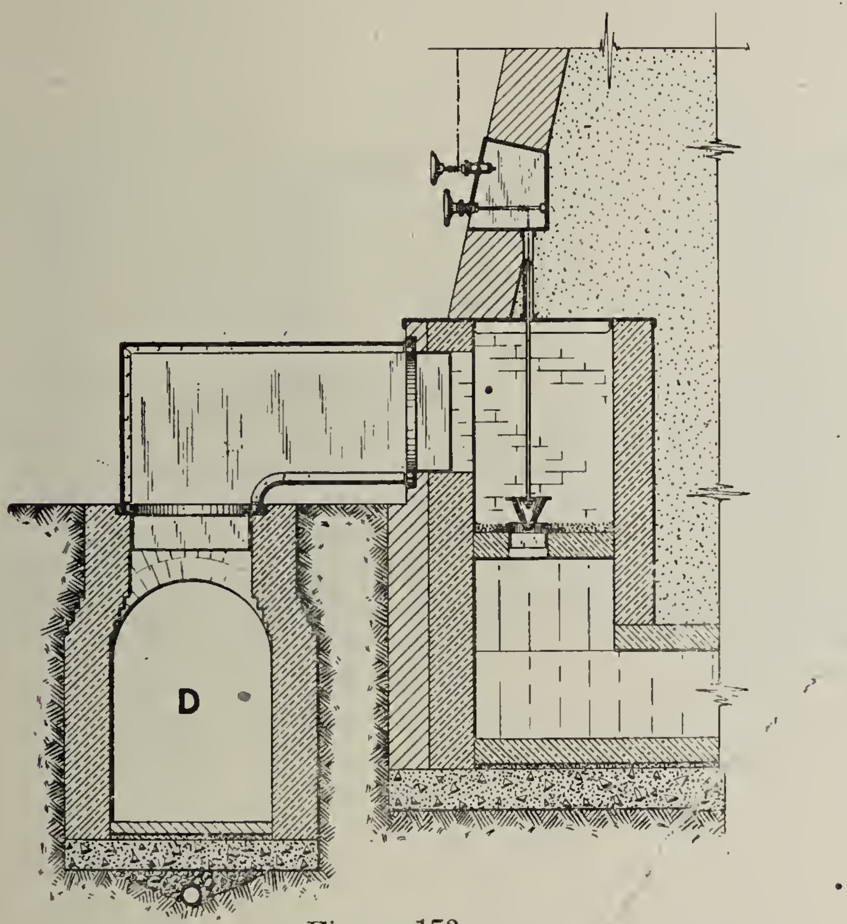


Figure 172.

The producer gas enters the bag spaces horizontally and the air rises vertically into the gas and both are carried forward into the bag space of the next compartment. The top of the bag space is crowned, forming an enclosed combustion space and in this crown is a series of ports for the escape of the burned gases, into the compartments, carrying with them the heat developed by the combustion.

The division walls are solid above the floor level, and also below the floor level except the two hot air flues above mentioned.

The plan illustrated is semi-continuous and the return hot air flue is centered under the compartments, returning the hot air from the last compartment (on the right) to the first compartment (on the left) and thence it is distributed through special flues to the four corners of the first compartment.

The sketches show the several main flues underground outside the kiln wall—draft ("D"), gas ("G"), and advanced heating ("AH")—but the actual location may be determined by circumstances and be varied in consequence. Seemingly it would be better to place the advanced heating flue on top of the kiln XX or in the upper part of the kiln wall, collecting and delivering the hot air for drying through hoods from man-holes in the kiln crown, in the usual manner—at least this method would offer less resistance.

The plan shown is for producer gas, natural gas, or oil, but it seems to the author that gas producer furnaces could be attached to the gas openings on each side of the kiln and thus get direct coal firing without any producer loss or any requirement in steam to operate the producer. Such a plan was worked out a number of years ago, and theoretically, so far as the plan was developed, no difficulty was encountered.

A section through one of the division walls of the Goldner kiln is shown in Fig. 176. The bag wall is arched over as in the Legg design, with vents in the top corresponding to the feed holes in the kiln crown. The hot air from one compartment is collected and carried forward into the bag wall space of the following compartment by means of perforated floor and under floor flues.

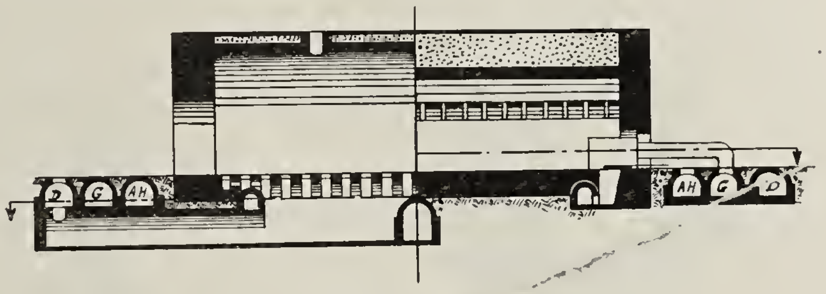


Figure 173.

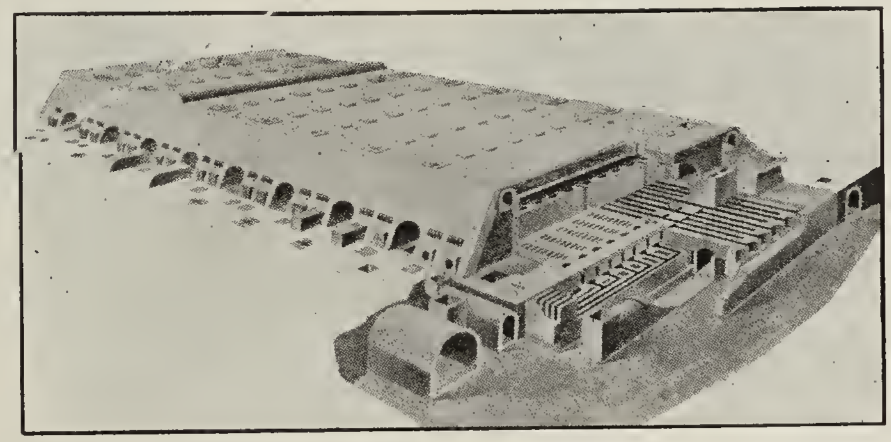


Figure 175.

For natural gas or oil firing and one might add, powdered coal, the burner is inserted in the feed hole and the downward current of gas comes in contact with the upward current of air and the final combustion takes place under the kiln crown.

The spandrell flue—one for each compartment—primarily is for producer gas supplied from a main in or on the kiln wall as in the Youngren kiln. Damper controlled ports in the base of the gas flue lead the gas into the lower part of the feed hole, thence into the compartment and into contact with the secondary air. This spandrell flue also serves as a collecting flue for advanced heating. The connections to the gas main and the main advanced heating flues are by hoods or goose-necks. After a compartment is burned the spandrell flue is cut off from the gas flue, and after the cooling has progressed to the point where heat may safely be taken for watersmoking, connection is made to the advanced heating flue and hot air is drawn from the compartment through the feed hole and gas port into the spandrell flue, thence into the advanced heating flue and by-passed to the compartments ahead of the burning compartments entering the latter in the same manner as the gas is introduced.

The sketch shows the air port in the top of the bag as being directly under the feed hole, but it should be between the feed holes and alternate throughout the length of the compartment.

Thus a table is formed under the feed holes for coal firing, or for salt in salt glazing.

(To be Continued.)

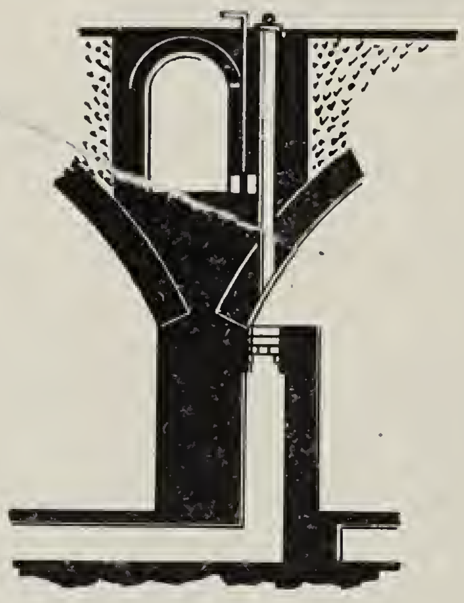


Figure 174.

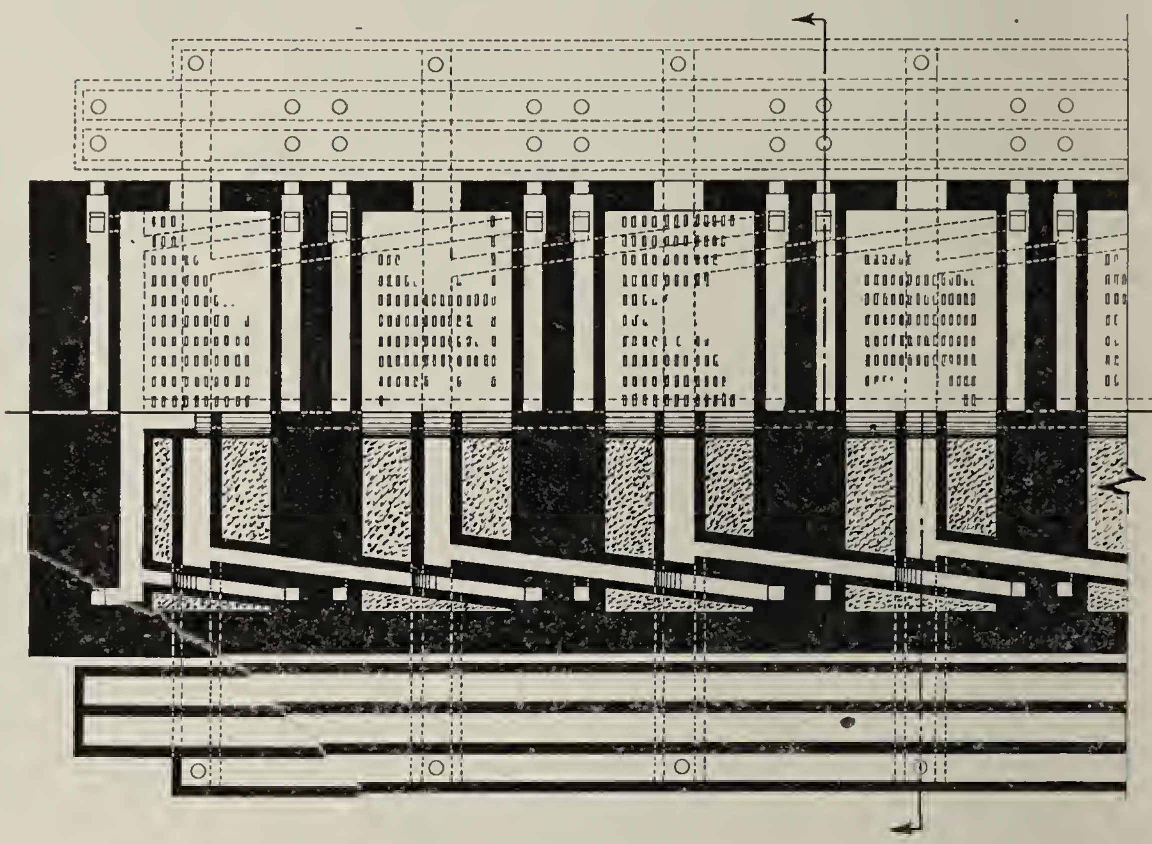


Figure 176.

CAUSES FOR THE FAILURE OF TERRA COTTA IN THE WALL.

By R. L. Clare.*

THE failure of a piece of terra cotta in the wall is taken to mean that the piece becomes cracked, chipped or broken, or that the glaze or slip coating shows crazing, shivering, peeling, or other similar defects, after the piece has been set in the building. In fact any piece that has, or develops, any defect that would cause it to become either unsightly or unsafe, after it has been set, should be classed as defective.

It is natural that the terra cotta manufacturer is very much interested in the causes for such failures in order that he may correct them if they arise in the plant, or that he may place the liability elsewhere if the failure is due to conditions not under his control.

The first and most important cause of failure is a defective body mixture. Such a mixture gives rise to numerous defects in the ultimate burned piece, and these defects are in most cases developed or exaggerated by the weather. As a result it has been common practice to state that the weather, meaning the action of heat and frost, caused such pieces to fail, whereas this action is only the secondary cause of the failure, with the primary cause originating within the factory itself. Such pieces undoubtedly are sent to the building with some physical defect or strain, either unnoticed or undeveloped and hence the failure. Our tests have indicated that the average piece of terra cotta, without defects and as it is now made, is of sufficient strength to resist any action of the weather.

It is not feasible to give reasons as to why a mixture is defective, as each mixture must be designed to suit the local conditions in each plant, and a good mixture in one plant may be a poor one in another. It is possible, however, to give some of the defects which result in failures in the wall from this cause, as follows:

First—Fire cracks or cooling cracks.
Second—Drying or shrinkage cracks.
Third—Low absorption or too dense a body.
Fourth—High absorption or too weak a body.
Fifth—Excess of soluble salts.
Sixth—Iron pyrites, lime pebbles or other such impurities.
Seventh—Low bonding power.

A body with a tendency to any one or more of the above named defects will develop those defects in pieces which receive slight variations from the normal treatment, such as
fects arising from this cause are:
being pugged poorly, dried too rapidly, or cooled too quickly. The proper body should stand these ordinary variations in treatment without serious results.

Another cause for failure of terra cotta pieces, and one that ranks next in importance, is the defective glaze or slip coating. The proper coating, as in the case of the proper mixture, should stand the normal variations in firing and cooling without developing defects or strains which the subsequent action of the weather would bring out. Some of the de-

First—Crazing.
Second—Shivering.
Third—Peeling.
Fourth—Separation of vitreous coatings.
Fifth—Soft or porous coatings.

The occurrence, or tendency to occur, of any of these defects, gives the weather an opportunity to develop and aggravate them to a point where the piece becomes defective and is said to have failed. In this, as in the preceding case, the weather is only the secondary cause of the failure.

The next cause for failure, and one to which too little attention is given in the average plant, is irregular burning conditions. This is taken to include setting, firing and cooling. No matter how good the body mixture and glaze or slip coating may be, strains and defects are continually being formed at this period. Consequently the importance of control over this operation cannot be too strongly urged, as oftentimes a few hours difference during certain periods in the rate of firing or cooling, or a slight change in the manner of setting, will prevent pieces from developing these strains which may eventually show up in the building.

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* Reprinted from American Ceramic Society Transactions XIX.

The fact that terra cotta must be made in such widely varying shapes and sizes, and that the walls of the pieces are of such uneven thickness, makes this burning operation of more vital importance to the terra cotta manufacturer than probably to any other manufacturer of clay wares. Some of the defects arising from this operation are:

First—Shrinkage cracks.
Second—Under burned or overburned material.
Third—Fire cracks or cooling cracks.

The first two defects named are easily discernible and hence are not so dangerous, as they can be readily separated from the good material.

The last of these, however, fire cracks or cooling cracks, is most important. These are usually so fine as to be unnoticeable before the material is shipped or, do not develop until after shipping when subjected to the additional strains arising in the building. These fine cracks constitute one of the most insidious defects, with which the terra cotta manufacturer has to deal, and should be investigated most carefully.

Nearly every terra cotta plant has kilns of widely different sizes and capacities. The writer has knowledge of kilns being burnt from 50 hours to 150 hours in the same plant and cooled over a like range. It is not probable that terra cotta burned or cooled in 50 hours is as free from strains or visible defects as the same material burned or cooled in 100 hours. Experiments which we have put through have shown that it is much easier to produce these fire cracks or cooling cracks by a slight change in the rate of firing and cooling than it is by changing the body composition over a very wide range.

The manner in which the material is set in the kiln might also be investigated as a source of this defect. One company within the writer's knowledge has eliminated to a large extent the setting of pieces on top of others in the kiln which certainly would diminish the tendency to set up strains during the firing. A better control and regulation of these burning conditions should materially reduce the number of failures from this source.

Other causes for the failure of terra cotta pieces may be classed under the general heading of stresses set up in the building itself, entirely separate and independent of the quality of the terra cotta furnished. This, of course, is without the province of the ceramic engineer, but it is important to the manufacturer in order that he may show, in many instances, that it is faulty construction or faulty setting that has caused the failure of certain pieces of his material. Some of the causes for failure under this heading are:

First—Expansion, contraction, or deflection of steel framework to which the terra cotta is attached.

Second—Expansion, contraction, or other movement of reinforced concrete buildings to which the terra cotta has been anchored.

Third—Settling of foundations with the resultant strains transmitted to the terra cotta.

These three causes all result in the same class of defects, namely: cracked, chipped or broken pieces.

Fourth—Imperfect "backing up" or "filling" of the terra cotta and imperfect "pointing up" of the joints.

A piece of terra cotta with the voids filled with a very rich cement mixture is subjected to a severe strain by the expansion of this material.

If the setting is faulty, and the joints are not water-tight, water is permitted to get in behind the pieces and to collect in pockets, and the resultant expansion of this pocket of water when freezing is very liable to burst the piece.

Written for The Clay-Worker.

BRITISH POTTERY TRADE REPORT.

DESPITE the high cost of building, the extension of factories has proceeded in several cases, besides the erection of one or two new works. South Africa is still pre-eminently a British market, but since 1913 the Japanese have trebled their exports to that country. Before the war Japanese exports of china and earthenware to India were about one-sixth of the English; now Japanese exports to that country are approaching the British in value. The American potters are successfully cultivating the Canadian middle class business.

At the present time it is impossible to meet the demand created by the world shortage of goods, but manufacturers are urged by distant overseas buyers anxious for British goods, to share their products equally between them and their nearer customers. There is a vast opening for pottery in Persia, especially British pottery.

During the second week of August there was a good demand for the best English wares from the United States; nevertheless, shipments showed a decline, both in value and quantity, as compared with last year. This is partly due to congestion at the ports and on the railways.

During the third week of this month two important matters occupied the attention of manufacturers—the government's new trade policy, permitting a free importation of foreign wares from September 1, and an unexpected application by the operatives for an all-round increase of 20 per cent. on both wages and bonus, applicable to all departments and all grades, and also dating from September 1. With regard to the first, a total prohibition of imports of foreign pottery existed during the greater part of the war period, but were recently modified by the admission of 50 per cent. of the 1913 imports from certain countries. Under the recent modification, a certain amount of Japanese ware found its way into the London and provincial markets, some of the makers of the cheaper grades of china and earthenware were somewhat alarmed at the prospects of Japanese competition on a considerable scale.

During the last week of August, labor conditions in the pottery industry were seriously disturbed. With the good relations hitherto prevailing, and with the conciliation machinery of the National Council available, a stoppage should be avoidable; but the outlook is not bright. The notice for the all-round increase of 20 per cent. on wages and bonus, was refused by the Manufacturers' Federation, who contended that a further advance was impossible without increasing selling prices, and that the export trade, in particular, would not stand any higher prices. The advances and concessions granted during the war represented an increase of more than 100 per cent. over the pre-war standard, though this was contested by the operatives, who maintained that their present earnings are only 71 per cent. over pre-war rates. The manufacturers at present were firm in their refusal and the work people were equally firm in pressing their claim. Efforts were made to bring about a conference, which was hoped, would result in a compromise. The situation was, however, complicated by the sectional action of the English China Manaufacturers' Association, one of the societies affiliated to the Manufacturers' Federation, who gave notice for reductions in making prices ranging 5 to 40 per cent.

COLOR STUDIES IN TILE.

By Chameleon.

THE choice of colors in the tile work of a building is usually in the hands of architect or decorator, since they have to care for the general effect and to combine the various materials to a satisfactory result. Architects as a general rule are not experts on color; they naturally show up better in "form;" the essence of the profession is "constructive form." The average decorator, as we have observed him, is timid about color; he always wants to play safe, overlooking what he is confessing. In so doing, in most cases, he is also the patient follower of vogue, prevalence, fad. Seldom does he show initiative or courage in doing anything original. We are writing from an entirely disinterested point of view, and with no desire to be captious or severe, but feel bound to observe that his business in these modern days has become an assembling of various furnishings towards a more or less satisfactory whole; the taste and discrimination he shows in his selections are the sole service he performs; he originates no single detail, no spot of color, no line in the composition. We will grant that he performs a useful service, and perhaps on the whole a satisfactory one, but in that way can come nothing that is fresh or inspiring. To do something that is inoffensive, that is not open to criticism, is very well; but is it Art?

In very many cases he is no doubt bound and restricted by his customers to some degree. That does not account for the whole of it, however; there are cases where the customer gladly embraces an original idea if it is offered.

A writer in a recent number of this little magazine spoke of the decorator regarding the walls and floor of a room as a "background." Presumably they are, for the furniture and the rugs. But why should it be always drab or grey or putty color? The gilt and colored leathers, tapestries, embossed velvets, etc., of the middle ages, and Spanish and Italian wall hangings were "backgrounds" too, and certainly to as rich and costly furniture as that of today.

It is a fact that the more cultured and sophisticated we are the less we indulge in color.

The primitive people are fond of color in their dress and their belongings. There was plenty of color in the days of the Crusaders, more gorgeous yet in the middle ages, an abundance prevailing among the Cavaliers at the time of the Restoration, and a good portion still in evidence down to the time of the Georges.

There is present day evidence, too, among the Oriental peoples, whom we are pleased to think backward in most matters; perhaps they are in electricity, telephones or aeroplanes, but they certainly surpass us in the use of color.

Tile for Reception Room, Etc.

Apparently tile work is mostly relegated to those portions of the house where decorative work is not. It seems usually to be sent to the outlying regions. It can come as far as the vestibule, and welcome; it is tolerated on the porch, and through a half closed door can be seen lurking in the bathroom. Elsewhere it is treated much as a poor relation.

In my opinion it would behave itself quite decorously in the hall, dining room, reception room, billiard room, etc.

There seem to be procurable faience tiles with wonderful wearproof glaze surfaces that one can be sure of looking at home and of merging into the "tout ensemble" in any company, and any kind of a composition.

While it is apparent that in the usual case the color of the tiled floor depends upon what the decorater has settled upon in the treatment of the walls, we will reverse the case by giving him a few colors for the floors, and leaving him his own task of bringing his walls to conform. It will be the more interesting. The colors given are some I have both seen and marked and are therefore available.

Some Suggestions.

For a hall floor—Madder red center with a wide brown-red border, a thin black line dividing them. Another suggestion—Alternate 12-inch blocks of two shades of brownish yellow, or alternate blocks of a gray-green and gray.

For a reception room—Chinese blue center with an old turquoise blue border, a thin black line between. Another suggestion—Mulberry color center with a darker mulberry color as border, an old blue line dividing.

For a billiard room—Gunmetal black center, with a yellowish brown and black staggered border; black outside border. Another suggestion—A moleskin gray (like wet gray) center with a broad walnut brown border.

For a bath room—An old jade colored wall relieved with a couple of orange-yellow lines. Another suggestion—A silver-gray wall with a couple of lavender or heliotrope lines. Another suggestion—A "pastel" blue wall with old turquoise blue lines.

For a dining room floor—Darkish tan center with a walnut-brown border, black line between.

If the architect and decorator will admit tile to such places, there need be no trouble in the working out of an effect perfectly suitable and harmonious with all the other features entering into the room.

Why also is not the same thing true and the same material suitable for wainscots, in such places as vestibules and reception halls of apartment houses, public buildings, churches, etc.?

There seems available a great variety of moldings, cappings, bases and door trimmings; almost anything in the way of design can be had, and colors that approximate natural woods of all kinds, as well as innumerable tints and tones besides.

By way of suggestion for such purposes we offer:

For Reception Hall of an Apartment House.

Wall—A low-panelled wainscot (two feet six inches high) of creamy gray; the sunk panels a couple of tones darker; a two-inch line of figured work under the capping; this of the same creamy gray, but with old blue in the "bed" or background.

Floor—Center of dull old blue, with a gray border. Black line between.

For a Big Entrance Hall in a Public Building.

A light walnut-brown panelled wainscot strongly molded (a darker tone of brown in the sunk panels). A floor of dark walnut brown in the center; a generously wide border of gunmetal black.

For a Vestibule in a Residence.

Walls—Panelled and decorated wainscot of gray-green with brown in the bed, or background, of all figured work.

Floor—Cork-brown floor, with gray-green wide line inside as a border.

Any suggestions made in this way are hard to visualize, but are easy to try from the color box, or still better, by bringing the tiles themselves together and testing them.

One important thing to remember in dealing with color is that you must keep in the "key." Exactly as in music, if you start with a high note, you must follow in the proper scale with all the others, or else you get discord, and harmony is destroyed.

Another thing that may be mentioned, although it is not important, is the fact that in theorizing about color you have to contemplate the probability that you are not bound to convince anybody else to your views, and so must be ready to make the best of it.

I am given to understand that the editor accords full liberty to one and all, to voice their dissent if they so desire, these pages being a medium for that purpose. A subject so controversial as color is bound to divulge difference of opinion, and also emphasize that unaccountable thing "personal taste."—Tilecraft. Copyrighted by The Associated Tile Manufacturers.

Written for The Clay-Worker.

PACIFIC COAST NEWS.

WHILE A SLIGHT DECREASE has been noted in the building permits of both September and October as against those of several months previous, a normal state of affairs, due to the coming of the rainy season, the offices of brick and clay manufacturers are continuing to do a most satisfactory volume of business.

The lack of sufficient housing, both in the downtown and residence section of San Francisco and surrounding cities, has by no means been made up as yet, and the majority of those in touch with the building material situation are of the opinion that this winter will see an unusual amount of construction work going on regardless of the season.

In several cases where firms have been in the habit of delivering via coastwise boats, on account of the longshoremen's strike, it has been necessary to reroute by rail, occasioning certain delays in shipment; but with this exception affairs have been running fairly smoothly for members of the clay industry. The principal difficulty which is always before the manufacturer is, of course, scarcity of skilled labor. Many firms state that their business could easily be doubled if a force of men could be relied upon.

At the recent California Land and Industries Show, which was held in October in the Civic Auditorium, one of the blue ribbon winners was the Pacific Sanitary Company of California, manufacturers of high-class enameled ware operating factories in Richmond and San Pablo and maintaining offices and display rooms at 67 New Montgomery street. The company's exhibit was most attractively arranged as a completely equipped modern bath room, all the fixtures being choice examples of Pacific products. Adjoining this booth was another where the trade mark of the company, a grizzly bear's head, flanked by bath tub, closet and wash bowl, the three principal items of output, was reproduced with normal sized fixtures and a huge gilt bear's head against a background of black.

The Sacramento Pressed Brick and Sand Company recently received permission to sell a certain number of shares of its capital stock for the purpose of making extensive improvements to holdings in Oakland, Cal., consisting of a number of lots whereon dwelling houses are to be erected, using the materials of the company.

Burning of magnesite, chrome and silica brick commenced at the Porterville plant of the McKnight Fire Brick Company early in October. According to reports given out at the factory, orders are coming in almost too fast to be filled, and in several instances it was necessary to refuse advance orders. J. H. McKnight, manager of the company, states that the experimental stage of operations at the plant is now passed and plans are under way to enlarge the present capacity in view of anticipated business. Several more men have been taken on, including R. S. Elliott, formerly of Kerman, Cal.

It is understood that the pottery works of Gladding, McBean & Co., at Lincoln, Cal., is preparing for the largest amount of work in the history of its operation. The immense new three-story fireproof building which replaces the ones destroyed by fire last year is now completed. The structure is about 300 feet long and 100 feet wide and is completely equipped with the most modern machinery. It is predicted that over 1,000 men will be employed at the factory and the officials of the company are endeavoring to secure men with families who will become permanent residents of Lincoln. The architectural terra cotta manufactured is declared to be among the finest in the world, and many of the contracts come from the Orient and Australia as well as all parts of the United States. One of the terra cotta experts from the Los Angeles office, O. Spears, was a recent visitor at the plant.

The pottery in North Sacramento formerly operated as the Cannon-Phillips Company has resumed the manufacture of clay products under a reorganized company known as the Cannon Company. D. A. Cannon, who has acquired the entire stock of the former concern, is at the head of the new company. A number of the former employes of the Cannon-Phillips organization have returned to the pottery. V. J. Persons, who was secretary of the old firm, will become outside representative of the Cannon Company. T. G. Mapel, formerly with the Diamond Brick Company, at Pittsburg, Cal., is the new superintendent. A patented clay building block, hollow tile and pressed brick are the principal products.

A deposit of red shale which was first discovered in the vicinity of Livermore, Cal., about four years ago, is now being successfully worked by Walter McBean, of the Crown Ore Mills of San Francisco. Shipments of the ore are now being made and it is meeting with the approval of the trade as a roofing and coloring tile material.

The Pacific Minerals Chemical Company, incorporated for one million dollars, has taken over the plant at Tropico, Cal., formerly operated by the Pacific Tile and Terra Cotta Company. It is stated that $500,000 of new capital will be brought in to build up and extend the activities of the industry. The products now manufactured are sewer pipe, various kinds of brick, building blocks and terra cotta, in addition to the mining and grinding of talcum from deposits in Death Valley. Under the plans to be followed, the output is to be doubled and it is expected about 1,000 men will be put to work at Tropico. The market, which is now national, will be extended to take in South America and the Orient.

A new brick manufacturing plant will soon be in operation at Douglas, Ariz., in order to manufacture clay products from material found in an excellent deposit about thirty miles from Douglas. Dr. M. L. Downs is president of the recently incorporated company, with D. N. Darling vice-president, and C. E. Baudisch secretary and treasurer. Mr. Baudisch is an experienced brick man and will have charge of the construction and operation of the plant. He states that the company intends building a plant having facilities for making both brick and hollow building tile and having a capacity of from 50,000 to 100,000 bricks per day. Samples of brick which were manufactured in Statesville, North Carolina, from clay taken from the beds now owned by the Arizona corporation, are now on display in Douglas and are said to be of excellent quality. The arrival of Mr. Baudisch in Douglas last year was the beginning of the enterprise. When he inquired as to the reason why no brick was manufactured in Douglas he was told there was no clay available for that purpose. Being experienced in the business and having a knowledge of brick clay he began a search for the material which he found in abundance at the location mentioned above.

SUNSET.

San Francisco, Cal.

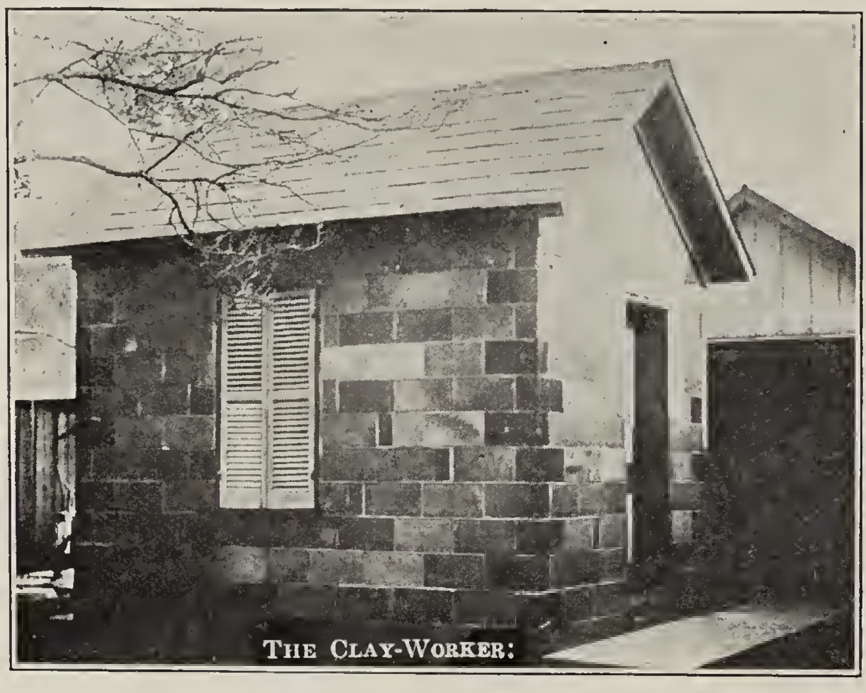
Hollow tile promises to fill a big hole in the building material needs of the future.

THE MARKETING OF HOLLOW TILE

Its Adaptability and Numerous Channels of Trade and the Need of Exploitation for use in the City and on the Farm.

IN THE MARKETING of hollow tile there is a new era before us and a new field of operations opening up which offers a promise of great returns if properly entered and well cultivated. The marketing of hollow tile for fireproof work and the big buildings in the larger cities is a fairly well established line, with well defined and reasonably satisfactory channels of trade. This does not require so much special attention right now as another field of development, that of marketing hollow tile in the smaller cities and towns and for use in the agricultural districts in the construction of farm buildings, silos, etc. Here is where it is entering a new field with a wide scope of opportunity before it which can be speedily developed by proper attention to marketing channels and methods.

In some states hollow tile has already made enough inroads under existing conditions to arouse the apprehension of the lumbermen who are now looking upon it as the most formidable competitor of lumber in the building operations on the farm and in the smaller cities and towns. Lumber people are admitting that hollow tile is the nearest in cost to wood construction of any of the substitute offerings for wood on the market, and one can readily see from their talks and propaganda that they are apprehensive that tile may replace lumber in a wide field of uses throughout the country.



A Tile Milk House Built in 1884, Good as the Day it was Built.

The question of the day for tile manufacturers, or one of the important questions at least, is that of what channels of trade to follow and what line of exploitation to use in cultivating this field that the greatest possibiliies may be realized upon. Part of the answer is found in the retail dealers in lumber and building material scattered throughout the country. A recent estimate gives a total of 45,000 retail lumber dealers in the United States, and while many of these are in the larger cities and specialize in lumber, while the tile finds its market in the larger cities through other channels, there are probably between 20,000 and 30,000 retail lumber dealers throughout the country who are prospective handlers of hollow tile as well as other clay products, lumber, lime and cement.

The lumber dealer is rapidly becoming not merely a lumber dealer, but a merchant of building materials. He has taken on cement, plaster, lime, paint, builders' hardware, composition roofing and in many instances brick. The question is, will he take on tile—will the tile people develop trade through this channel which under existing conditions seems to be the most logical channel for the development of trade in the wide field of the agricultural districts, the smaller cities and towns?

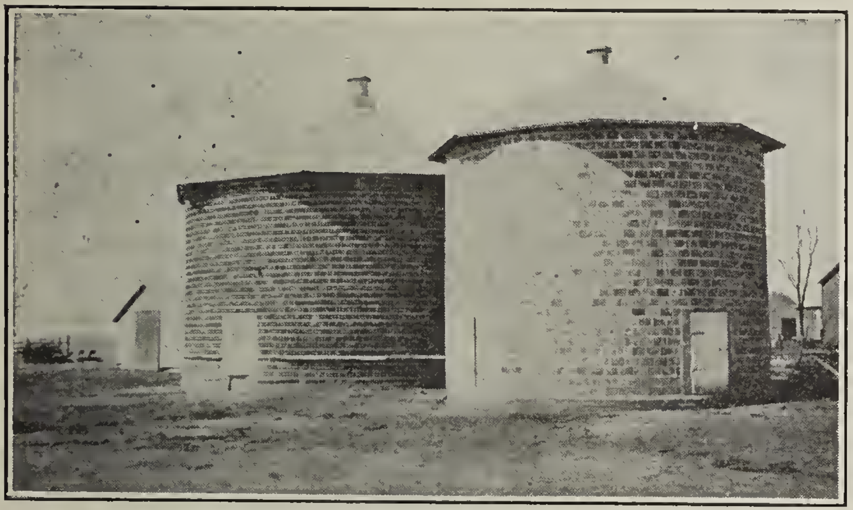
Plant Offices Built of Hollow Tile.

Hollow Tile Hog House, Showing Method of Ventilation.

The story of cement and its development in connection with the retail lumber dealers should furnish an interesting example and point the way for hollow tile manufacturers. Cement in its earlier days of development found its way into country points and in limited quantities through any and every merchant who saw fit to order a barrel or two now and then. When the production of cement in this country reached the point where a larger field of consumption was imperative and the prospects for development were canvassed, then the cement manufacturers came to a realization that the dealer in lumber and building material was the logical man to handle and properly exploit cement, especially since it was to go mainly into building operations. Following this realization they got busy at concentrating their trade through this channel. They withdrew their quotations from merchants who bought a barrel now and then, awakened the interest of the retail dealer and concentrated their trade through his hands. The outcome was not only good business for the retail dealer, but it multiplied the volume of demand and consumption for cement until today there are perhaps 50 barrels used where one was used fifteen years ago.

The hollow tile industry has before it something of the same opportunity for development through the same channels of trade if the matter is gone about right and persistently and intelligently pursued. The dealer who has made lumber his main item in the past is awakening to a realization that the day is here when he must include in his stock and his sellings as nearly as practical every item of building material for which there is a market in his community.

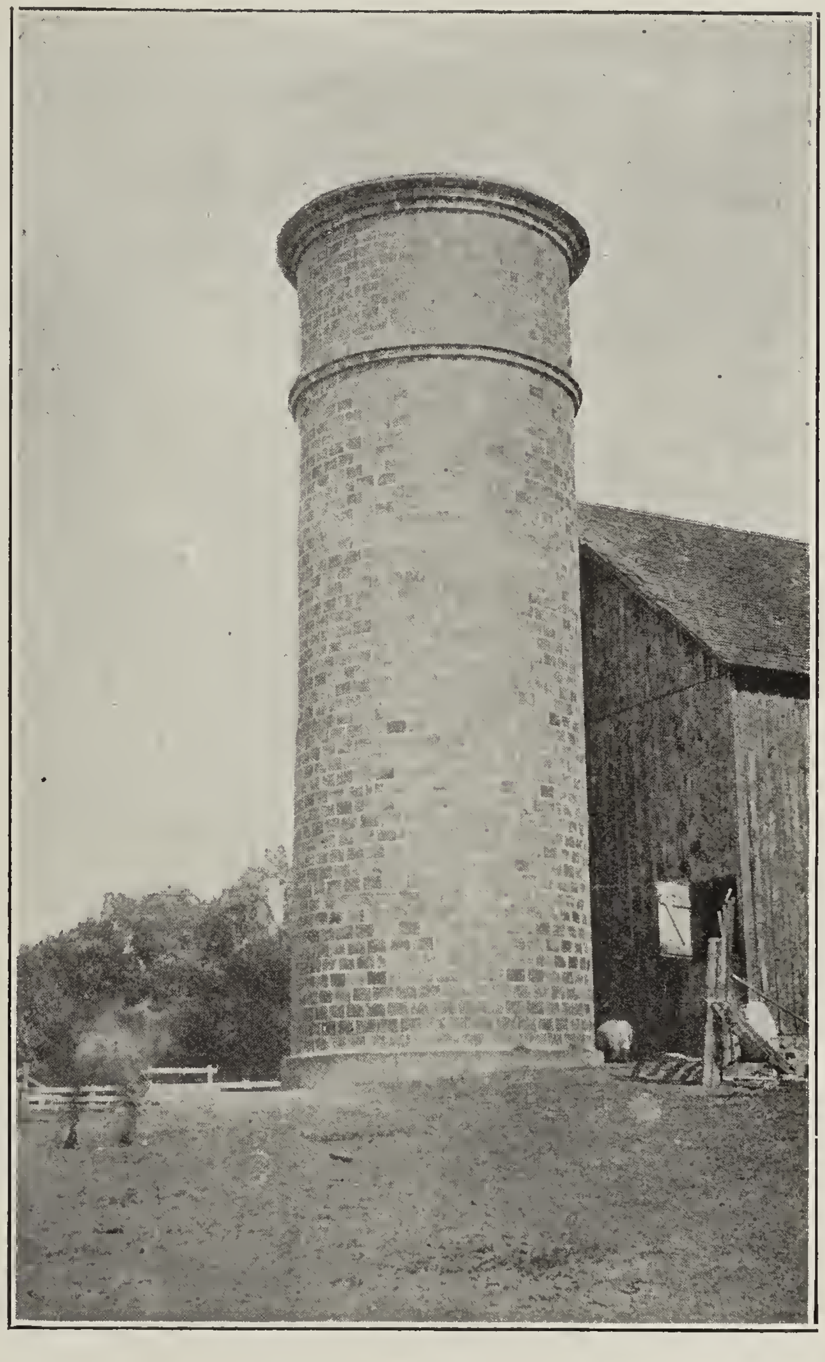
For several years now there has been developing an interest and a closer contact between the brick fraternity and the retail dealers. Brick men have appeared at retail conventions and pointed out how the dealer can make a little extra money for himself by acting as an agent for brick. One trouble at first was not enough in the way of remuneration was provided to make the matter interesting to the dealer. The matter of 25 cents a thousand on brick to be shipped direct was a small bit to a dealer when he had lumber in his sheds on which he could realize from one to five dollars a thousand, so naturally he preferred to push lumber and did not become enthused over brick.


Twin Hollow Tile Corn Crib and Granary.

A Smoke House Built of Hollow Tile.

Later the brick men came to realize that it was up to them to get more for their product and to allow more for exploitation and marketing. The result is that today they are making it enough worth while for the retail dealer that he is showing more interest in brick and clay products than heretofore. Instead of getting the meager 25 cents a thousand for selling brick many dealers are today getting a dollar a thousand or more for this purpose, and this is putting them into a mood for more things along the clay products line. This, in turn, makes an opportunity and opens the way for hollow tile marketing through these channels.

So much for the channels of trade. The channels are already there, that is, the logical channels, well distributed, and the big question of the day is how to develop the market as it should be, how to cultivate the field of possibilities for future business. This calls for exploitation, which in the final analysis means printed matter, literature about tile, what it is good for and how to use it. Some of this can be sent direct to prospective customers but much of it can be handled through the retail dealer just as the cement men distribute much of their literature to promote interest in and enlarged use of cement. The time is ripe now for the tile people to concentrate some unusual activities on exploiting tile for farm use and for use in building operations in the smaller cities and towns. In a word, for home building and home surroundings. That is the big field for future prospects. Presumably there will be an ever growing demand for tile in the big buildings in the larger cities. This is a trade that is pretty well established, however, and to some extent will take care of itself, while the agricultural field is a new field with great opportunities for development. And that it has been developed lately we find evidence of in the report of tile production and distribution.


14x50 Foot Silo, with 5 Inch Walls in Use Nine Years.

Notwithstanding the fact that hollow tile has been made for a generation, more or less, it was only in 1917 that the tabulation on this product was set forth separately by the U. S. Geological Survey in its reports. The result shows that there were 2,590,028 short tons of hollow tile marketed in 1907. It also showed that hollow tile is made in 37 states and that new industries are being installed right along. So far, however, the heavy concentration of hollow tile production is in about five states with Ohio leading the list. Ohio produces a little more than a third of the total output of hollow tile at present, followed by New Jersey, Iowa, Illinois, Pennsylvania, in the order named. These five states produce 77 percent of the total output of hollow building tile. In these five states there has already developed enough interest in tile construction on the farm and in home building to encourage more active propaganda which in turn should lead to the making of hollow tile one of the conspicuous items in the construction on the farm and in the smaller towns and cities.

These are the states which logically should take the lead and blaze the way both in the matter of trade channels and litterature for exploiting tile, but meantime the other states where tile is produced should be taking notice and getting busy too.

One splendid idea that should be put into action this winter is that of attending the meetings of retail lumber dealers, which are usually held during the winter months, for the purpose of getting acquainted and circulating information about hollow tile and its possibilities. There are state and regional associations of retailers and if the tile people in each state will get in touch with the officials of these they can perhaps arrange for some speaker on the program to tell about tile and its uses and thus pave the way to the development of extensive trade possibilities.

The possibilities before hollow tile during the next few years are almost unlimited. It is simply a question of getting busy, getting out literature, finding channels of trade and marketing the product.

SILLY ARGUMENTS.

IT MATTERS NOT what a man is exploiting the use of, whether it be burned clay products, lumber or composition materials, to make the exploitation continually effective he must stick to facts and figures. Extravagant statements which finally reach the point of becoming silly arguments prove boomerangs in the long run, and the man who reads them realizes their silliness and would be influenced against rather than for the product.

This comment is inspired by the reading of some arguments in favor of wood construction against hollow tile put forth by H. R. Isherwood, of the Retail Service Bureau of the National Lumber Manufacturers Association.

Among the foolish statements contained in this argument is one that it is absolutely impossible to put up a building of hollow tile and have it proof against moisture and the penetration of cold, and further that no hollow tile wall is fireproof unless protected with mortar. Other statements are made, statements not so wild, but almost equally as silly, which should in the end prove to be boomerangs.

One of the difficult things for the average advertising man and propaganda writer is to avoid wild and extravagant statements because he is seeking to be emphatic and these constitute the obvious matters for emphasis. If those who prepare such propaganda would put themselves in the position of the reader for a moment who will read not only their stuff but also the claims of competitive offerings, to get an idea of the impression all these wild claims and counterclaims will have on the prospective user. Plainly he will lose faith in all except those who make only statements which can be verified and backed up. Clayworkers have the best building material on earth and plenty of arguments they can stand by, so there is no occasion for them to go into wild statements and in the end nothing will be gained by the lumberman putting forth such silly arguments as the above.

HOOVER GIVES TESTIMONY.

In the "Nation's Business," for November, 1919, Herbert Hoover, he of food control fame, gives some interesting testimony as to world conditions and draws some conclusions therefrom that are worthy of sober thought. There is perhaps no more competent witness in the world than Mr. Hoover, who was sent abroad by President Wilson following the armistice as head of the economic control. He came in intimate contact with the people and the officials of various nations in turmoil, and returned with a knowledge of world conditions which he has very ably interpreted in an article covering the happenings since the armistice, and touching specifically on the conditions of unrest and the efforts to find the solution.

The Passing of Socialism.

Two convictions which he says dominate his mind as an outcome of his service are: first, an emphatic conclusion from his observations that socialism as a philosophy of possible human application is bankrupt.

Second, that we of America have grown away from Europe in the century and a half of our national existence, in our outlook on life, our relations toward our neighbor, and our social and political ideas. Moreover he concludes that the supreme importance of this Americanism neither permits us to allow the use of our country for experiment in social disease, nor does it permit us to abandon the moral leadership we have undertaken of restoring order in the world.

The Real Cause of Industrial Unrest.

Broadly speaking, the original trouble back of all the turmoil, Mr. Hoover finds, is a result of political tyranny, and a manifestation of desire for a better distribution of the products of the industry. The political tyranny applies specifically to certain European countries, while the unrest over the system of distributing industrial production is more or less general throughout the world.

The attempts at solving these problems of recent years he finds have been dominated by Marxian Socialism, developed in different degrees of intensity. Revolutions and attempts at revolutions he finds have taken two forms—the Bolshevik form, and the milder form of legislative nationalization of industry.

Speaking of the results in Russia in following the Bolshevik idea he says:

The Situation in Russia.

"Today two-thirds of the railways and three-fourths of the rolling stock that they control are out of operation. The whole population is without any normal comforts of life and plunged into the most grievous famine of centuries. Its people are dying at the rate of hundreds of thousands monthly from starvation and disease. Its capital city has diminished in population from nearly two million to less than 600,000. Prices have risen to fantastic levels. The streets of every city and village have run with the blood of executions; nor have these executions been confined to the so-called middle and upper classes, for, latterly, the opposition of the workmen and farmers to this regime has brought them also to the firing squad in appalling numbers."

Then in connection with this and other happenings in other parts of Europe he says that he believes it was necessary for the world to have had this demonstration. Also that a purely philosophical view might be that these experiences are necessary to humanity, groping for something better. He contends, however, that it is not necessary that we of the United States, now that we have witnessed these results, need plunge our population into these miseries and into a laboratory for experiment in foreign social diseases.

Americanization the Chief Essential.

Mr. Hoover recognizes the need for some readjustments here that there may be a more satisfactory distribution of the products of industry, but he is emphatically opposed to our implanting into American soil any of the experimental ideas from Europe because the situation is different here. He realizes now that there has grown up in the United States a higher sense of justice, of neighborly service, and of self-sacrifice, and above all a willingness to abide by the will of the majority in every section of this country.

This Americanism, he says, is the guarantee of the ability of our people to solve this most momentous internal problem confronting our generation.

HEARD IN NEW ENGLAND.

CONDITIONS as the season closes all over New England are satisfactory. During the past two months building operations started and projected have increased faster than during any other similar period in five years. The fact that a great many projects are under consideration for next summer makes it almost sure that business will be good. Massachusetts seems to be especially well fixed. Some say that building prospects have never been as good as they are now and this includes all types of buildings, from the cottage to the public structure. Brick promises to be more popular than ever before, with other forms of burned clay and those who are contemplating building are nearly all planning to use burned clay in one form or another.

Prices are high and likely to remain so. Boston is paying from $18.00 to $20.00. Worcester is paying about $18.00. Springfield is paying close up to $20.00. Holyoke is getting its brick for around $19.00. Greenfield is asking $19.00, and other cities are quoting prices which are much like these. While the figures are high builders are quite sure that they will have to pay them in order to get any brick at all. Demand is likely to be much larger than it has been, and unless a sufficient supply of labor is forthcoming early next spring it may be that the output of the various yards will not come up to the expectations of manufacturers.

Robert H. Pray, who started a plant early in the spring at Greenfield, Mass., has had a good season. James H. Gallagher, who was superintendent of Charles C. Dyer's plant for a number of years, operated the plant this season and the results have been quite satisfactory. The output was up to expectations and brought good prices. The prospects for the coming year are more promising than they were this year and better business is expected.

The two yards of the Northhampton Brick Company, at Northhampton, run to nearly capacity all the season and turned out a liberal quantity of brick. Not much was shipped away. A good deal of building was done at home, and the prospect for further building development in the spring is promising. The company says that its year has been all it could wish.

At South Hadley Falls., Mass., the plants of the Hampshire Brick Company, Lynch Brothers' Brick Company and O'Connell's Sons all operated to as near capacity as labor and other conditions allowed. The output was absorbed in construction work near at home. Even though Holyoke has a number of plants of its own the product of the South Hadley Falls yards were needed to supply all the brick desired. The season is closing with few left for delivery. They had none at the opening which shows that orders have about kept pace with their output.

The Springfield Brick Company, a three machine plant at Springfield, ran all the season and closes with almost no surplus to supply demand until the first burnings are ready next spring. Trade has been the best it has been in years and builders took the product of the kilns as soon as they were cool enough to ship.

Elmer K. Phillips, of Holyoke, started his yard with improvements this season. He has a New Haven brick machine and motor and erected a new machine house at the beginning of the season. His product has been taken about as fast as it was produced and he is now without a surplus of any considerable amount to carry him over the time between opening and the burning of the first arches.

Thomas Brothers, Turner Falls, Mass., have done a good business all summer. They have about cleared what they had on hand, however, and early comers next spring will have to wait until the first burnings can be delivered.

The Forest Park yard, at Springfield, Mass., a two machine plant, has done well all summer and closes with its stock about cleared for the season. Making has been hampered somewhat by lack of help, but the output has been satisfactory nevertheless. Good prices prevailed all through the season and are even better now.

HIRAM.

DISTRICT OF COLUMBIA NEWS.

For several months past there has been a decided scarcity of common brick in the national capital. Large building operations in and around Washington, which were kept back by war-time restrictions, are now keeping the brick manufacturers busy and are likewise rapidly reducing the surplus stocks at all of the yards. According to present indications, the early spring is to see a decided revival of general building operations, and all of the District of Columbia brick manufacturers predict a big year.

A subject of both local and general interest in the brick manufacturing industry is the passing of the well known "District Tile and Brick Co., Inc.," formerly one of the leading concerns of its kind in this section of the country. The extensive plant, machinery and all equipment of the firm were sold at auction on Monday, November 17, in deed of trust foreclosure proceedings. The company had an extensive business at Langdon, D. C., one of the suburbs of Washington. Included in the assets disposed of are over 32 acres of high grade clay lands. The business has been in existence for a number of years, having had considerable trade in and near Washington.

One of the largest brick contracts recently awarded in Washington is being handled by the West Bros. Brick Co. This is the big Hadleigh Apartment Hotel now in course of construction on Upper Sixteenth street, when finished to be the largest structure of its kind in the national capital. The brick being furnished are the red pressed face for the upper stories, with tapestry for relief, together with stone, in the lower portions of the building.

Shipments of brick from Washington to Utah show the reach of some of the manufacturers here. Hy-tex brick for a number of large edifices in Salt Lake City and other far western points are now being furnished and shipped from here in considerable quantity.

A new brick manufacturing firm has been organized at Roanoke, Va., just below Washington. The concern will be known as the Roanoke Brick and Tile Co., and it starts with a capitalization of $50,000, which will later be increased. John T. Bandy, a well known brick man of the section, is the president of the new company.

ALTHOMAR.

REFRACTORIES

Written for The Clay-Worker.

MANUFACTURING FIRE BRICK IN ENGLAND.

WHILE ON THE other side of the pond this last summer I visited some of the plants in Scotland, especially in the Glenboig and Bonnybridge district where land. When last I was there, about thirteen years ago, there most of the fire clay goods is made which comes from Scot- was quite an antipathy to making fire bricks by any other than hand made, most of which were made by what is termed the dry stock process; now the only brick I saw made in this method was specials, the method used in making these specials and used to be used in making the stock sizes. After the shale has been ground in the dry pan and tempered in the wet pan the clay is taken either by car to a movable bench, this is a bench which can be moved around the hot floor so that the offbearer will never have to travel too far, or to a stationary bench which is stationed in a part of the drying shed where it will be easy to at least get a day's work around it without moving. This bench or table is usually fed from a chute from above where the clay is carried by elevator or otherwise.

When the clay is on the bench, the moulder rolls his clay before putting into mould, which is usually made of wood lined with metal, or the moulds are made of solid metal, usually brass. This mould lies on a piece of wood called a block which is covered with felt to prevent the clay from sticking. The name or trade-mark of the firm is usually put on this block in brass letters which leaves an impression on the brick; only one brick being made at a time; a piece of felt is also tacked on the table for the moulder to roll his clay on before filling his mould. After the moulder fills his mould, he uses a stroker or slickstick to cut off any surplus clay and smooth off the brick. The slickstick is in a water box right opposite him over the brick where he can reach it easily. The mould is not dipped into water at all. He then takes his mould with the brick in it and turns it out on to the offbearer's board. There are three of these boards slightly larger than the brick, one of which is always on a board projecting from the moulding bench at a convenient place for the molder turning out the brick; the offbearer, either a boy or a girl, then puts one of the boards on top of the brick when he has the brick between two boards, he then puts down the other to receive the other brick or rather puts down the two boards together, the one on top and the other for the next brick. He now takes the brick between the boards and puts it in rows on a hot drying floor. The thickness of the board, about one-half inch, allows space for the bricks drying. The bricks are laid down on their stretcher side, 9 x 3 inches, which is the standard size of fire bricks used in Great Britain, the 9 x 4 1-3 inches x 2½ inches being the size made for export. The offbearer never handles the mould at all. All the arch, keys, bullheads, splits 1 inch, I saw made were made this way. A few of the smaller plants are still making the standard size this way by hand. A moulder and his offbearer made 3,000 for a day's work. I have known as many as 30,000 being made in a week of 60 hours by a moulder and an offbearer, but this is not common. It is rather unusual.

These bricks are now ready after drying for the kiln and look as well as any pressed fire bricks I have seen. The great objection to the manufacture of fire bricks by machinery over there was not so much the makers as the users. Between twenty and thirty years ago the Glenboig Union Fire Clay Co., Ltd., put in machinery for the manufacture of their standard size of fire bricks, but the steel plants and other users were so insistent about the bricks not standing, that they had to take the machinery out. Otherwise they would have lost their business over there.

The war appears to have changed all this as Mr. Hurll, of Peter & Mark Hurll, who have two plants in Glenboig and two in Glasgow, when being asked why they had taken to the machine-made fire bricks informed me that when the men were drawn up for the war and the demand for fire clay goods increased, they could not meet the demand. Then they put in machinery as the call was for more, and more, and girls could be taught to work at the machines, that there were few complaints and he could make them cheaper with machinery.

The process which is being used there is the semi-dry and the plastic process. This plastic process is not a wire cut brick. There is a pug mill for tempering the clay, the clay comes direct from the pug mill to a revolving table with dies or moulds in it. These are filled automatically and as the table revolves they are pushed out into the repress and pressed. This machine is attended by two persons, one at the pug mill and one taking the bricks from the repress to the cars. One man, of course, is used for transferring the cars to the drier. I timed one of these machines and it was making twenty-nine bricks per minute, others were making less. In one plant in the Bonnybridge district, they are using eight or nine of these machines, so it would appear that there is room over there for some of the American machine makers to investigate and see if they could not place machinery with a large output. The most of these plants have been patched up from hand-made brick plants to make them suitable for machinery and here again I think there is lots of room for a modern plant with the latest machinery and modern labor saving appliances. Prices are good, wages have gone up considerable and the cost of living has more than doubled itself. Men in brick plants over there are now only working eight hours a day. Nearly all the plants are now using continuous kilns and I saw some very fine burns in these kilns. The top and bottom being very uniform in color and hardness, the chambers are much smaller than we use here. The tunnel kiln is also being used. I found the most of the bricks being made there just now were for export.

D. V. LOWE.

Written for The Clay-Worker.

RESISTANCE OF CLAY.

For tapered bodies gradually forced into clay the load necessary to produce a given penetration is very much greater the less the percentage of water in the clay. Clay containing a definite percentage of water, and at a definite temperature, has a definite pressure of fluidity, and when this pressure is reached and maintained the clay yields indefinitely as a dense viscous fluid, unless it be restrained from flowing or caused to rise so as to produce a statical head of clay. The pressure of fluidity is greater when the percentage of water is less, or when the temperature is lower. The pressure of fluidity per se is independent of the depth and depends solely on the percentage of water in the clay and the temperature of the clay.

For equal depths, tapered piles support a larger load per unit volume of the piles than piles having parallel sides. The reason is that in the case of tapered piles their surfaces keep in more intimate contact with the clay, with the result that the support due to the friction on their sides is greater than is the case in parallel piles. In order to increase the resistance of piles they should be corrugated as well as tapered. The reasons why parallel piles with blunt ends are not so efficient per unit volume is that the pile in entering the clay rubs the surfaces near the top of the hole made so much that the friction (or cohesion) is reduced there, and also because the clay in squeezing laterally from under the end particularly loses contact with the sides of the pile, thus also reducing the friction on which the supporting capacity of a pile depends. The mean intensity of friction for the same depth of penetration on the sides of parallel piles is greater in the case of piles of small cross section than in the case of larger ones; but if the diameter of the pile be reduced beyond a certain amount (the depth of penetration being constant) then the mean intensity of the friction appears to decrease again. Consequently for a given quantity of material of which to make piles a large number of small piles is more efficient than a smaller number of large ones.

Point piles are more efficient per unit volumes of pile than blunt ones because the points cause a more gradual lateral displacement of the clay, thus leaving it in more intimate contact with the sides of the pile. The action of the point of a pile is to cause the pressure of fluidity to be attained on its surface, whereupon the clay flows out of the way.

The resistance to penetration is considerably greater the lower the temperature of the clay, probably because the pressure of fluidity increases as the temperature decreases. The density of clay decreases as the percentage of water increases. The work done per unit volume of displacement increases as the angle of taper decreases, but when the taper approaches 0, or is 0, then the work done is less than when the angle of taper is larger. When a disc is forced into clay, the sides of the hole do not crush in (unless a certain critical depth be attained) because the pressure of fluidity of the clay having been attained immediately under the disc, the clay flows laterally; but the moment it has escaped from beneath the disc the pressure is reduced to the statical pressure corresponding to the local head of clay, and when this is less than the pressure of fluidity the clay does not flow into the hole made by the disc. If, however, the penetration of the disc be carried far enough, then ultimately the statical head of clay will be equal to the pressure of fluidity and the sides of the hole near the bottom will crush in.

The friction of clay on wood was found to be greater than on tin plate. The tensile strength of the clay experimented with was greater when it was raw and dry than when it was baked.

M. M.

Written for The Clay-Worker.

MILWAUKEE AND WISCONSIN CLAY NEWS.

MANUFACTURERS and sellers of brick and clay products in Milwaukee and throughout the state of Wisconsin are doing a bigger business than ever before in the history of the industry. The big cry today is production; the demand is taking care of itself. In a sense the situation bears a serious aspect, inasmuch as yards are at a lowest point in years, and in some instances virtually depleted of stocks. The consumer and contractor everywhere is anxious to obtain material to finish operations in hand before cold weather and snow sets in. The dealer in turn is pressing the manufacturer to the utmost, who is face to face with the most serious shortage of labor ever experienced. Despite the attractive wages offered, labor continues to become scarcer daily. Manufacturers report higher wages are being paid now than during war times, to attract men to their plants. However, the practice also has a reactionary effect, inasmuch as employes now at work decline to work full time and are satisfied with employment a few days each week. As a result production is materially curtailed.

There has been no indication of a let-up in building operations throughout the state, in rural districts as well as cities. The spirit of building has taken grip everywhere, and unprecedented records have been established. Milwaukee has already surpassed, on November 1, by a margin of over a million dollars the biggest building boom in its history. The value of building permits issued for the first ten months of this year in Milwaukee total more than $16,000,000 as compared with about $15,000,000, the biggest building year heretofore established by the city, which was for the total year of 1912. With two more months to go, every indication points to a $20,000,000 building year, if the operations for several months past are any criterion of what can be anticipated. Permits for the month of October alone totalled $3,500,000. Industries throughout the city and state are building new factories and additions to their present plants, which in most instances are being made of brick.

G. A. Perry has resigned as president of the Vesper Clay Products Co., Vesper, Wis., and will be succeeded by Geo. M. Hill, of Grand Rapids, Wis. Mr. Perry has been president of the company since its organization. He has not made public his intentions for the future, but will take a long rest for the time being.

C. C. Stadler, who recently purchased the Schaf Brick Yard at Two Rivers, Wis., is installing entirely new machinery and equipment for the manufacture of brick and tile. Mr. Stadler reports that recent tests made by experts in Cleveland of the clay on the premises indicates that it is of the finest quality obtainable for the making of high-grade brick and tile.

Another new brick company has been organized at Chippewa Falls, Wis., known as the Chippewa Brick Company, with a capital stock of $50,000. The incorporators are William Henneman, J. Jaeckle and Walter A. John.

H. A. Smythe, treasurer of the Wisconsin Brick Company, addressed the members of the Rotary Club of Madison, Wis., at their weekly meeting at the city Y. M. C. A., Thursday, October 30. Mr. Smythe explained the details and technicalities of brickmaking.

The Farnham & Yahr Co., Antigo, Wis., dealers in brick, tile, lime, cement, etc., has been sold to George Dakin and B. H. Strong of that city.

BADGER.

EIGHTH ANNUAL MEETING OF THE MANUFACTURERS AND DEALERS OF FACE BRICK TO BE HELD AT FRENCH LICK, DECEMBER 2, 3 AND 4, 1919.

"PLUTO"

THE FORTHCOMING Eighth Annual Meeting of The American Face Brick Association at French Lick Springs, Indiana, December 2 to 4, at which time the Face Brick Dealers' Association will also hold their annual convention, is the topic of all-absorbing thought to face brick interests today.

The selection of French Lick as a meeting place appears to have been a wise one, as every indication points to the largest attendance of face brick interests in the history of the industry. Aside from the central location (being near the center of population of the United States) it is doubtful if any metropolitan hotel at the present time could satisfactorily accommodate such a meeting. As the meeting will be strictly a business one, there will be nothing to divert the interest from that purpose. There will be no banquet. There has been a strange lack of interest in banquets anyway within recent months.

Every face brick manufacturer is keenly interested in learning first hand the status of the association's affairs and what is in store for the future. The first session of the meeting will convene at 2:30 p. m., Tuesday, December 2, when the minutes will be read, the president will make his address and the secretary-treasurer will present general and financial reports.

At this session Mr. M. F. Gallagher, one of the special counsel employed by the association in the formal complaint before the Interstate Commerce Commission to have the present unjust burden of excessive freight rates relieved, will present summary of what has been accomplished and what he has in mind for the successful prosecution of the case. Mr. Gallagher will be on hand during the meeting to receive any further evidence which any visiting manufacturer may wish to submit or discuss.

The morning session on the second day will be addressed by Mr. Elmer H. Adams, of the firm of Adams, Childs, Bobb & Wescott, general counsel of The American Face Brick Association. Aside from Mr. Adams' attainments as a lawyer, there is no one more familiar with association problems than he. His short addresses to group meetings in the past have commanded instant and undivided attention and those who have heard him will look forward with especial interest to this feature.

At this session, Dr. G. C. Mars, the association's director of advertising, will give a detailed account of progress made in the association's advertising campaign, telling exactly what has been accomplished, what his plans are and explaining the assistance necessary from individual members. As there is so much involved and as this proposition is such a huge one, it is hardly necessary to say it will be fully attended.

The afternoon of December 3 will be devoted to divisional meetings, a number of the divisions of The American Face Brick Association having voted to hold their scheduled November meetings at this time.

The last session will be held on the morning of December 4 at which time the meeting will be addressed by Mr. E. H. Scull, chief of system staff of Ernst & Ernst, probably the foremost accountants in this country. Anyone who has an idea that this meeting will be a mere presentation of dry statistics is badly mistaken. Mr. Scull is a business engineer of the first ability and his showings of what one industry saved through the adoption of uniform cost accounting and comparisons will be a revelation as to what saving at both bunghole and spigot can accomplish. At this time the annual election of officers of The American Face Brick Association will be held. In the afternoon of December 4 the board of directors will meet.

Ample opportunity will be afforded for manufacturers to get together with their dealers and discuss individual problems.

Arrangements for sufficient sleeping car accommodations from Chicago have already been made. The Monon route will hold their connection at Mitchell, Ind., for B. & O. No. 1 leaving Cincinnati at 8:50 a. m., December 1 and 2 until 1:00 p. m., which will insure a pleasant trip for those coming from the east on such a schedule.

In addition the Brick Club of the Cincinnati Chamber of Commerce has arranged for special sleepers leaving Cincinnati, 9:00 p. m., December 1.

Needless to say, all face brick manufacturers are not only heartily invited, but will be most warmly welcomed, as the association's ever-foremost ideal is "Progress of the industry benefits the individual manufacturer."

The hotel rates at French Lick will be as follows:

Single Rooms—	
With bath	$8.00 per day, American plan
Without bath	7.00 per day, American plan
Double Rooms—	
With bath	$14.00 per day, American plan
Without bath	12.00 per day, American plan

THE BUILDING SITUATION AND OUTLOOK.

Illustrative of why we are short of housing facilities even though seemingly a good volume of building has been done the past season are some statistics gathered in a city of approximately a quarter of a million inhabitants.

The figures gathered show that in the pre-war days the annual building operations included permits for approximately 800 dwellings including flats and apartment houses. During the year 1918 this was cut down to 39, while for the present year the estimate is for a total of 300 permits covering dwellings, flats and apartments. These figures in a city showing fairly active building indicate that most of the building of the year has been of the urgent class, for factory buildings, warehouses and other commercial purposes, and that home building has not yet gotten back anywhere near to normal.

Broadly speaking, the current year instead of wiping out some of the shortage in homes has but added to the housing requirement by falling short of the usual amount of construction of this kind. This should make the building outlook un-

The Famous Pluto Spring House, French Lick.

usually bright for that class of structures known as dwellings including everything in homes from the modest cottage to the apartment house.

There is to be found in all this some splendid argument in favor of the clayworking industry assiduously cultivating the prospective home builders during the winter to the end that the homes of next year may be more largely constructed of the best building material on earth.

GETTING TO THE HOME BUILDER.

IT IS doubtful if the brick making fraternity as a whole or the average brickmaker individually has yet fully realized the importance of the home builder in the general scheme of building operations and the necessity for getting in touch with him directly to promote the interest of brick building. There are various estimates of the amount of building needed and of the proportion of this which constitutes home building proper. One general estimate is that we need a construction program of 3 billion to run for several years and 2 billion, or two-thirds of this should be home building. Another estimate is that the present day requirements of this county is a million homes. Then there is set forth the thousands of factory buildings, hotels, schools, apartments and other of what is termed the major building undertakings.

Now, the impressively interesting thing about this is the percentage piled up by the home builder in comparison with the other buildings, and there goes with it this fact, which should be pondered over. Brick is reaching those who undertake the larger buildings, the architects and the builders of factories, hotels, and apartment houses. They are not to be neglected, of course, but broadly speaking they are being pretty well taken care of and brick is being used in something near the proportion it should be used in the larger undertakings, though now and then there is sharp competition with reinforced concrete. Still, at that, brick has been put before the people of these undertakings more thoroughly and more persistently than before the home builder. The fact of the matter is the home builder has been rather neglected and yet there we are confronted with statistics setting forth the startling fact that the home builder as a whole represents approximately two-thirds of the total building operations.

Is there any need in the face of this to urge the importance of getting in closer touch with the home builder? Surely not. The facts themselves speak so loudly that the only thing seemingly necessary now is to point ways and means through which the brick manufacturer may get in closer touch with the average home builder. Not only with those who are reached through the architects, but the multitude of builders of modest homes who follow stock plans or devise plans of their own in co-operation with their building contractor. Other people, the lumber men in particular, have had close contact with these home builders for years and this is one reason why lumber has continued to dominate in such home building, while on the face of things brick has furnished a better material and a better opportunity all around for the average home builder. One interesting explanation of the close contact of the lumberman with the home builder is found in the fact that the local lumber retailer has been active in the work of helping to finance the home builder. This, after all, is the big problem to the majority of men who undertake to build a home, to find the money and finance the undertaking. A number of methods of financing have been developing for years, one of the most interesting of which is the building and loan association, and in the organizing and promoting of these lumbermen have been very active, while the brick men, so far as known, have taken but little interest. There is where they have missed an important point of contact which may be improved by proper attention.

A Shaded Drive at French Lick Springs Hotel.

According to the latest statistics there are 7,484 building and loan associations in the country with a total membership of over 4 million. These associations have total assets of $1,898,344,346. In a word the assets of the building and loan associations are approximately 2 billion dollars and the mortgage loans made by them in 1918 amounted to $480,292,037, nearly half a billion. This makes of these totals some big figures, yet they are not nearly big enough when we consider that the home building requirements of the country will be something like 2 billion a year for several years to come and in most cases money for the home building must be borrowed or a part of it at least.

The farm loan banks are helping along a somewhat similar line, financing building and other improvements on the farm, and now there is being developed a means somewhat comparable to this for the government to render assistance to the building and loan associations. The idea is to arrange for building and loan associations to re-discount their mortgages through government channels and thus obtain more money for further loans which will naturally help promote home building.

The thing it is desired to get out of this and lay before the average brick manufacturer is the point of contact and the advantages it offers in bringing the brick man in that close touch with prospective building which means business. The retail lumber men have in many instances organized buliding and loan associations themselves giving time and effort to it for the sake of the indirect returns which come through increased building operations, and all throughout the country most of the state organizations of retail lumbermen have building and loan association committees who assist in organizing and promoting building and loan associations to finance the home building.

The work that has been done by the retail lumber dealer suggests two points of contact. One is for the rich man to take more active interest in this building and loan association work, and the other is for the brick men to seek for trade development through the channels of the retail lumber dealer who is already in touch and has that direct contact which means a first opportunity for business.

HERE TOO.

One of the many pamphlets of the day has for a title the question "Will America retain its merchant fleet?" We are ready to answer "Yes" to this without even reading through all that has been written about it.

THE ECONOMY OF BRICK STREET AND ROAD CONSTRUCTION.*

By Will P. Blair.

THE ECONOMIES of highway improvement embrace certain distinctive divisions of sufficient importance for each to be treated separately. There is that economy which bears a relation to the use of the road; there is that economy which pertains to the adaptation of the kind of road to the uses of traffic it is expected to bear.

But fundamental to all road economies is that economy which is possible in the construction of every kind of road. What is necessary to include and what should be excluded is of paramount interest at this time. In the world and in our own country where we have not enough of anything which a civilized people ought to have, and facing a disposition on the part of many to restrict and forbid plenty, it becomes the duty, the especial duty, of the thinking and patriotic people at this time to enhance economy in all directions.

In the construction of brick roads we have not yet developed the use of tools and appliances to that extent which we should, which will lessen the actual labor necessary in brick street construction. However, this factor of construction economy is receiving attention, and much progress has been made recently. The manufacturers of vitrified brick have had the courage to adopt a standard size paving brick, the dimensions of which are 3x4x8½ inches. This is a distinctive step in economy, both in the matter of increased production and convenience in its use.

It is true that we have made progress out of the visualization which we are able to exercise through the long experience in the use of a great variety of types of brick pavement construction. We can almost unerringly draw out of this experience and observation many points of economy in the absence of knowledge of underneath soil conditions and the resulting behavior of the same, physical and climatic. Being obliged to accept these conditions, we can provide against some known behaviors. We do know that soils saturated with water under the influence of low temperature create an expansion almost irresistible in the force of its strength. This force irregularly exerted from underneath breaks and cracks the superstructure, if brittle in character, almost regardless of the strength of the superstructure.

We know that in the absence of such saturization pavements are not subject to such destructive force. Thus we see some brick pavements injured by this cracking process. We do not find the individual units of the brick pavement injured to any extent. On the other hand, there are hundreds of miles of brick pavements resting upon soils so thoroughly, naturally or artificially drained that no apparent injury is exerted. The brick in such pavements held in alignment do not show any perceptible wear. The life, therefore, of such pavements is unknown. They would last indefinitely.

Extremely moist conditions often, when not frozen, furnish such unstable support that shock-effect in the nature of crystallization finally exerts injury. Out of a study of these influences has grown a belief that a rolled broken stone base will so perform a drainage function as to stabilize soil support and at the same time afford sufficient voids that frozen moisture content will cause but little expansive force, so that a broken stone base is a great assurance against injury from frost action.

An added assurance against injury is the employment of an asphalt filler which possesses qualities of adhesion and cohesion sufficient to hold the brick in place and yet afford a yielding quality which results in an adjustment and re-adjustment following any expansive force.

Therefore a combination of the two, a rolled broken stone base with bituminous filler, unites against injurious effects in a most wonderful way. These qualities, thoroughly understood, combine an element of economy so great that it may be regarded as real progress in economy of brick road construction.

But the purpose of this paper is to call particular attention to some things which we have hitherto failed to do in the construction of brick streets and roads and other things which we have allowed to be done or carelessly submitted to, which really amount to encouragement or actual approval and against which we have been unwilling to protest.

Curbs are required along the sides of the edges of city streets as a part of the gutter provision for the flow of water and as a wall to support the lawn or sidewalks at greater elevation. They form a part of the finish which contributes to the tasty appearance of the street. But how often do we come in contact with that influence which has grown out of conditions of years gone by, when great gutters were dug along the streets upon the theory that the surface of the street itself could be more readily drained thereby. Hence we have deep expensive curbing and unnecessary high crowns to streets for which there is no earthly reason. The crown of the street and the height of the curb should never be more than necessary for the proper surface drainage.

In highway improvement along routes not paralleled by sidewalks experience has shown that where monolithic or semi-monolithic construction is used by laying the brick in green mortar or mixture of sand and cement and filling the joints with a cement filler, curbs are not needed and are a useless expense.

Experience has also demonstrated that curbs are not needed where asphalt fillers are used. The practice of making the curb an integral part of the foundation is more harmful than beneficial. A trough is formed which holds the water, permitting it to subside into every chance crevice and opening in or underneath the pavement instead of the needful provision for an unimpeded flow from off and away from the pavement.

Experience has further shown that a curb independent of the base and set up against the pavement performs its supposed function with but little effect. The front raises the curb out of place or, with a moistened condition outside the curb, it is easily pushed away, leaving the base without any embankment support whatever.

A gravel, broken stone or slag embankment or shoulder which would be subject to compaction by the occasional overlapping of vehicular wheels has proven a far better protection. A still better protection is a berm penetrated with a bituminous material which will allow readjustment of a possible displacement.

The curb for brick paved country roads is therefore largely a useless and costly appendage, incurring an expenditure of from three to five thousand dollars per mile that represents a waste pure and simple.

It has never been contended by any one that a curb built flush with the pavement was to bear any part of the traffic. In fact it never does. Then why not put the expense of the curb into additional width of wearing surface—to satisfy the growing demand for a wider roadway?

There are conditions upon hillsides and through heavy cuts where a curb becomes a necessity either for water disposal or for protection against water. But such are but mere exceptions to an almost universal possibility.

In the matter of specifications for road improvement our largest efforts have been in the direction of perfecting, by description and nomenclature, the materials out of which the artificial superstructure of pavements is to be made. We have diligently searched and provided for, as to what constitutes and how quality may be ascertained, both with reference to the units of material as well as by specific and understandable directions, as to how these materials may be brought together in placement to the best advantage.

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*A paper read at Twenty-fifth Convention American Society for Municipal Improvements, New Orleans, La., November 11-14, 1919.

The economic value of all of this, however, is dependent entirely on the agencies which injure and destroy this artificial superstructure and the units of composition. These agencies are recognized as arising from two sources. That of traffic on the one hand and on the other the behavior from natural causes of the underneath soil condition. The destruction from traffic because of its visibility has drawn from us our greater attention and study. But soil conditions, which exert a far greater influence on the durability of pavements than traffic itself, we do not understand. At the moment no engineer is able by any description, by any nomenclature, or by any classification of various characters of soils, to correlate them to such scientific treatment as will render injury on account of possible conditions, proof against injury to the pavement itself. We are so uncertain of our ability to characterize soil quality in relation to its ability to resist or influence moisture content by capillary attraction that we merely visualize, and we do sometimes say, drain here and drain there, as a kind of excuse or camouflage of our own ignorance, and in practice we install a pavement of exactly the same design, five, ten, fifteen or twenty miles in length, regardless of the condition upon which we place this track for traffic.

We are unable to direct how the sandy clay muck sections of our road or street sections shall be dealt with. Who knows in truth and in fact just what you and I mean by the unintelligible terms of clay plastic or muck soils? Why not be satisfied by saying stiff asphalt, shale brick or rock cement? If we do not say so in so many words we act as far as we do act under the undefinable and uncertain term of "sufficient drainage." The absurd and unscientific way in which we have dealt with the underneath soil conditions in highway improvement, or our failure to deal at all with it, should bring us to realize that as highway engineers we have yet some work to do. To place reliance of sufficient support of traffic upon certain artificial slab strength of costly structure, without knowledge of what is already in existence, and regardless of its worth for that purpose, or without knowing with what small relative expenditure certain treatment may render its condition inadequate, is but an acknowledgment of inability to economize and prevent great waste. Where, how and to what extent our drains shall be placed in each kind of soil to maintain in greatest stability we do not know, and if we should know we have no means of intelligent nomenclature to convey that to others to interpret our meaning.

When we can classify or rate soils by some simple and inexpensive means of ascertaining its ability or limitation of capillary properties, and name the classification, and then correlate that soil to necessary treatment to maintain its stabilization and also to say what that treatment should be, we can then say whether our drains shall be eight feet apart or twenty feet apart. Whether they shall be three or eight inches in diameter, whether they shall be three feet or four feet under the ground.

The writer realizes the magnitude of the task required to gain the information necessary to put into practical effect a workable specification which shall effect a cure for the conditions complained of.

However, the research work is under way, to be pursued with persistence until met with success or failure. It can not well be an exclusive effort. Suggestions will certainly be welcomed.

MARION FIRM REBUILDING PLANT.

Henry L. Erlewine, secretary and treasurer of the Marion Machine Foundry & Supply Company of Marion, Ind., writes that they have been swamped with business for the past several months, and are consequently rebuilding their Fourth Street plant, which will triple their output, which comprises clayworking machinery, as well as high grade brass and iron castings, oil well machinery, boiler room specialties and mill supplies.

OBITUARY.

Death of A. R. Root, Philadelphia, a Charter Member of the N. B. M. A.

A TELEGRAM announcing the death of A. R. Root of Philadelphia reached The Clay-Worker just as we were closing the forms for this issue. Mr. Root passed away at his home in Philadelphia, November 20th. Death resulted from a complication of kidney and bladder trouble. He had been associated with Chambers Brothers & Co. for many years, and was known personally to a large majority of brick manufacturers of the nation. Originally he was a brick manufacturer himself, and as such attended the first meeting of the National Brick Manufacturers' Association at Cincinnati in 1886, and has been in attendance at every convention of the Association, being the only member beside Secretary Randall who has never missed a convention, a matter in which he took great pride. His death is a distinct loss to the industry. He was a man of high character, modest and unassuming but efficient in whatever task he undertook. A widow, son and daughter survive.

A. R. Root, Philadelphia.

DEATH OF MAJOR MATT L. KING.

SOME MONTHS ago The Clay-Worker chronicled the unusual feat of delivering an order for brick by aviator Major Matt L. King. Now we are called upon to chronicle his demise. Appreciating the risks taken by aviators, we would not have been much surprised to have learned of his death by accident, but we were both surprised and shocked to receive a message over the telephone telling of his death after a brief illness October 23 at Fort Sheridan, Ill.

Major King was a conspicuous figure among Iowa clayworkers for a number of years prior to entering Government aviation service, in which he became an enthusiast. He was laid at rest with full military honors at Des Moines, Iowa. He was forty-three years of age and is survived by his widow and two daughters.

OFFICIAL ANNOUNCEMENT.

Thirty-Fourth Annual Convention of the National Brick Manufacturers' Association to Be Held at Columbus, Ohio, February 16 to 21, 1920.

Joint Convention to Be Held With the Common Brick Manufacturers' Association of America and Other Affiliated Organizations.

A GREAT EDUCATIONAL CENTER is surely an ideal place for a meeting of an educational organization. Such a place is Columbus, and such an organization is the National Brick Manufacturers' Association. So it is peculiarly fitting for the thirty-fourth annual convention of the N. B. M. A., the "daddy of all clay organizations," to be held in Columbus, Ohio, the third week in February, 1920.

Columbus is, too, a great commercial and industrial center. Being the capital of the State, makes it a great social and political center. The latter point is made apparent by the accompanying letter of invitation from the chief executive of the State, Governor James W. Cox, who will extend a personal welcome to the N. B. M. A. during the convention. The worthy municipal executive, Mayor George J. Karb, also extends a cordial invitation, in which he is joined by the local clayworkers and educators, all of whom will gladly contribute to the success of the convention.

Columbus a Great Convention City.

These facts, coupled with the splendid facilities of Columbus for the entertainment of visitors, make it a very desirable place of meeting for the N. B. M. A. and its affiliated organizations. This will be the third N. B. M. A. convention held in Columbus. The first was in February, 1899, and the second in February, 1908. Since the latter date the city has grown wonderfully. Among its recent achievements is a new Athletic Club, which ranks among the finest in the land, and a fine new hotel, the Deshler, a model modern hostelry, unsurpassed in equipment for the comfort and convenience of the traveling public.

Columbus is the home of the pioneer American School for Clayworkers, which, together with the Department of Ceramics at the Ohio State University, makes that great institution of learning of particular interest to all clayworkers.

In view of all these advantages offered by the Buckeye capital, it has been selected for the thirty-fourth annual convention to be held at the Deshler Hotel, February 16 to 21, 1920, and all affiliated organizations are most cordially invited to meet there during that week. Ample accommodations will be provided, affording every desired facility in the way of meeting rooms, etc.

Hotel Deshler Headquarters.

The populariiy of the Hotel Deshler among tourists is proof of excellent service and equipment. It was erected and outfitted at a cost exceeding $2,000,000, and its spaciousness, modernity, elegance and comfort aid in the entertainment of the public. The entire second floor of this hotel is so architecturally arranged that it may be used as one harmonious whole in entertainment of conventions, providing exhibit space, auditorium, committee rooms, etc. The Deshler is operated on the European plan, and the rates are reasonable, ranging from $2.50 up per guest, according to location, etc. Practically every guest room has a private bath and toilet. The minimum rate for a double room is $4.50. The dining room service is unsurpassed, and there is a quick service cafeteria and coffee shop that busy men find a great convenience. Naturally, the Deshler is very popular, and consequently early reservations are advised.

Hotel Deshler.

Meetings of Affiliated Organizations.

The Common Brick Manufacturers' Association will meet jointly with the N. B. M. A., holding board meetings, executive and open sessions Monday and Tuesday, as will the National Paving Brick Manufacturers' Association and the National Clay Machinery Association. The local sections of the American Ceramic Society, the common and face brick manufacturers and makers of drain tile, sewer pipe, hollow tile and terra cotta are invited to participate, thus insuring a representative gathering of clay products manufacturers.

Those desiring further information as to requisite of membership in the National Brick Manufacturers' Association, or any other detail of convention arrangements, are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
J. W. Robb, President.
Theo. A. Randall, Secretary.

Are You An N. B. M. A. Member?

ARE YOU A MEMBER of the National Brick Manufacturers' Association? If not it is pertinent to ask yourself why, and to consider some reasons why you should be a member. There are really two broad lines of reasoning on the subject of why every clayworker should be a member of the N. B. M. A. One line is the benefits which accrue from such memberships, and the other line of reasoning is the benefits which may be derived for the industry as a whole from a larger N. B. M. A membership because of the greater work it can then accomplish.

The war and conditions resulting from the war brought new impetus to organized effort and made more important than ever before the need for such effort to beget co-operation and co-ordination in business and industry, that we may not only readjust our industrial affairs on the proper basis, but that we may also maintain our industrial and commercial supremacy as a nation.

Taking the clay-working industries sepecifically the war not only called for extensive research work and the development of new clay resources and the producing of new products, but it has led to a new progressive era in several branches of clay working. New ideas are being developed in structural material, their needs and possibilities and new development is going on in the science of plant and kiln construction and operation, all of which points plainly to the need for more effort on the part of N. B. M. A. in the line of research work, standardization and education. A larger membership will mean more funds with which to carry on such work, and this will result in greater benefit to the clay industry as a whole.

On the other hand, it is obvious that the membership in the association will not only bring to the members the benefits of the work as it has been carried on, but there will be increased benefits for the individual members in proportion to the enlarged ability of the N. B. M. A. which will come from a marked increase in membership.

In a word, there are today more reasons why every man in every branch of the clay-working and the clay-working machinery industry should be a member of the N. B. M. A. than ever before. The officials of the organization and special committees are setting to work industriously to increase the membership, and since all will benefit from such an increase, the individual members of the association should also concern themselves with the matter and assist in a campaign for an enlarged membership.

A REFRESHING DECLARATION.

There is a national association of stationary engineers, those men whose skill is so essential in power production, and at their recent annual meeting this public declaration from the preamble of their organization was made:

"This association shall at no time be used for the furtherance of strikes, or for the purpose of interfering in any way between its members and their employers in regard to wages; recognizing the identity of interests between employer and employe, and not countenancing any project or other enterprise that will interfere with perfect harmony between them."

This is not only a refreshing declaration for this day of the strike craze but is a shining example which other organizations of workmen, both skilled and unskilled, may well follow. After all, the great opportunities for association work are along the lines of education and enlightenment. The strike belongs to the bad things of the past and is not the doorway to enlightenment and the betterment of conditions in the future.

COAL PRODUCTION.

The item of coal has been the center of so much attention lately that a brief resume of the coal production of the world and the United States should be of interest and value at this time, and it is well to note at the outset that the United Sates produces and consumes more coal than any other country in the world. In fact just about the same as the two next countries in importance in coal production and consumption.

In the pre-war days the world's production was a little less than 1,500,000,000 tons. In 1914 the United States produced 513,525,477 tons; Great Britain, 297,698,617 tons; Germany, 270,594,952 tons, and France 32,765,156 tons.

This will give a sort of general idea of the relative importance of the leading countries of the world, and from this it may be deduced that today the United States produces as much coal as Great Britain, Germany and France combined, and also consumes all of it except a possible 10 per cent. that goes into the export trade.

The coal production in the United States for 1918 was: Bituminous, 579,386,000 tons; anthracite, 98,826,000, making a total for the year of 678,211,904 tons. This is the greatest total ever produced by any country and it will, perhaps, exceed the total production for 1919 while another year may bring even greater production.

In pre-war times the months of greatest production in the coal trade were the winter months, or rather the months running from September to February. During the summer period the production was slow because there was not much disposition on the part of the domestic trade to stock ahead of the winter needs. The war and the pinch in coal changed the situation so that in 1918 the heavy production was in the summer period. The greatest production of all being in the month of August, a total of 55,144,000 tons as compared to 40,184,000 tons produced in December.

This year while there were continued efforts at spring and summer production, and while some of the showings for the months that have passed were above those of pre-war days, they are not up to the 1918 showing. So, broadly speaking, we are not so bad off in the matter of coal supply as we would be had pre-war practices prevailed. On the other hand, we are not as well prepared as we should be largely because the car shortage limited production during those summer months when the movement would have been heavier had transportation been available.

If industry keeps moving as it should and demanding the usual quota it will take fairly steady operation of our coal mines to supply the needs for the winter and spring and if these operations are seriously hampered and the output is appreciably curtailed there may be a coal pinch comparable to the war time when the fuel administration took hold of things.

BE SURE OF A SAFE MARGIN AT FIRST.

The man who meets the price to sell his product is often called upon to meet complaints afterward, for it is hard to cut prices below a safe margin and still maintain that quality in one's product which will give the right kind of satisfaction.

THE TRADE QUIZ BOX.

Many readers of The Clay-Worker are wont to ask the editor for information on various matters pertaining to the brick and tile business. Usually such questions are answered by letter on the theory that the party asking the question is the only one particularly concerned, but many times the queries are of a general character and cover points in the trade in which the general reader may be interested, so we again inaugurate a Trade Quiz Box. Under this head, questions and answers will be given and any reader who can give further particulars in response to any particular query, or desires information on any phase of the business, is invited to make use of this department.

DRILLS FOR TESTING CLAY AND SHALE.

Question—Could you please inform me where I could obtain a drill for testing shale and clay so a core of the material can be obtained without the use of water. A small drill operated by man power is preferred.—R. B. W.

Answer—If you want to prospect through shales, fire clays and coals to a depth of 100 feet or more, the power core drill is necessary. It would not pay to buy such a machine for prospecting a single property. There are drillers who are equipped to do this prospecting and make a business of it. You will find them in the coal regions of Pennsylvania and Ohio, or possibly in your own section.

For soft clays and shales to a depth of 20 or 30 feet I have used an auger, buying a common wood auger, 1¼ inches, and welding it to a ¾ inch pipe, making a T handle out of the pipe and having several joints of pipe three or four feet long for coupling on as the hole gets deeper. For a deep hole it is best to provide a tripod or derrick with a winch to lift the auger out of the hole. One must be careful not to give many turns at a time in soft clay or the pipe cannot be pulled out easily. A 1½ inch auger may be used with a 1 inch pipe, if in soft clay and pulled out frequently.

A better rig is a hand drill similar to what coal miners use, with a double crank turning an auger drill. These can be had mounted on a tripod with weighted legs. They are not intended, however, for depths over about 20 feet, but they will bore through shale better than the wood auger. By arranging a derrick above to support the extended drill connection they could be used for greater depths. The Howells prospector's drill is the best thing I know for the purpose. The total weight of the complete machine, less tripod, is 75 pounds. The tripod with three weights, each 75 pounds, weighs about 300 lbs. This complete rig with two 9-foot augers made of 1½x½ oval steel to drill 18 feet used to sell for $72.00, but what it would cost now I do not know.

W. D. R.

HOW TEMPERING CLAY AFFECTS THE PRODUCT.

Question—I would like some information relative to the tempering of clays. Also the causes of lamination, and the remedy.

Answer—The amount of water necessary to add to the raw clay to give the proper consistency for the machine varies with different clays and for each clay the proper amount of water should be determined and used, for much in subsequent operations and in the quality of the ware depends upon the temper of the clay. In common practice the proper working temper is that at which the clay is fluid enough to take almost any shape under reasonable pressure, solid enough to resist change of form due to its own weight, and cohesive as to itself but no longer sticking to the hand or metal surfaces.

The primary causes of lamination are: the stiffness of the clay bar, which prevents perfect healing between two surfaces in contact; the differential flow in the bar itself due to fractional resistance along the periphery; and the rotative tendency imparted to the clay by the screw not one of which it is possible to wholly remove. Owing to the different physical characteristics of different clays, it is possible with some to reduce the lamination to almost a negligible quantity. Strength and plasticity seem to be the two physical properties which most affect these defects. The stronger a clay, the less likelihood is there that the differential flow will break the clay bond and manifest itself in cleavage lines of laminations, on the other hand the more plastic the clay which is usually accompanied by greater strength the more like a fluid it acts, causing greater differential flow not alone because of its greater fluidity, but also by causing peripheral friction. Clays of very low plasticity are least subject to lamination. Such clays are usually low in strength and the forces producing lamination manifest themselves in ragging the corners or breaking the bar transversely.

From these considerations it is evident that one of the simplest methods of reducing lamination in a clay of average plasticity is to temper the clay to a wetter consistency, in which condition it would require less pressure for the formation of the bar, and the ribbon delivered by the screw would heal more perfectly. The temper to which the clay may be plugged is governed almost wholly by the softness at which the product can be handled from the machine to car and retain a perfect shape. The supposed disadvantage of having that extra amount of water to evaporate in the dryer is offset by the better product obtained. A reduction in the tendency to laminate is also accomplished by cutting down the taper to the nozzle and the die, thereby reducing the lateral pressure and the incident friction.

RECENT PATENTS.

[Full details and specifications of the following patents may be had by addressing **The Commissioner of Patents, Washington, D. C.**, and enclosing five cents for each patent desired. In ordering, give number of patent only.]

No. 1,315,916. Brick-Veneering Machine. John Eldridge, Oakland, Cal., patentee. Patent assigned to Robert S. Dollar, Oakland, Cal.

An improved brick-veneering machine comprising a supporting frame, a conveyor for the brick, means for actuating the conveyor, means for applying plastic material to the brick while supported by the conveyor, and means carried by the conveyor for squaring off the applied plastic material.

No. 1,318,806. Kiln. John C. Schaffer, Tiffin, Ohio, patentee.

A kiln having a central flue, first radiating flues extending therefrom, second additional radiating flues intermediate the first radiating flues decreasing in distance from the first radiating flues as extent from the central flue decreases and extending short of to the central flue, and a floor over said central and radiating flues, there being horizontal passages beneath the floor providing connecting ways between the first and second radial flues throughout the radial extent of such flues.

No. 1,314,821. Mold for Ceramic Products. Frederick S. Lowery, Roseville, Ohio, patentee.

In a machine of the class described comprising a hollow bowl-shaped body, the interior of said body being provided adjacent to its rim with a pair of ear-forming pockets, the rim of said mold adjacent to the pockets being formed with wedge-shaped recesses, and a plurality of wedge members operable to interfit within said recesses and serving to space said pockets from the rim of the mold.

No. 1,318,960. Brick. Rufus R. Bolt, Canton, Ohio, patentee. Half interest assigned to Alfred Burdelow, Canton, Ohio.

A brick designed for building and other uses comprising clay and roll scale.

No. 1,315,167. Machine for Assembling Tiles. John J. Semashko, South River, N. J.

In a device of the kind described, a drum provided with a series of circumferential strips spaced apart and providing intervening channels and means for discharging to the drum a plurality of rows of tiles, filling all of said channels.

No. 1,318,140. Hollow Interbonding Brick and Construction. James J. Funsten, San Francisco, Cal., patentee.

A hollow tile brick comprising, in its entirety, similar spaced U-shaped members of uniform width and depth arranged side by side and constituting twin-walled mortar-receiving channels of substantial width, and a horizontal bridge integrally connecting the adjacent walls of the U-shaped members at their upper edges to providing a downwardly facing channel, forming an air space the thickness of the walls of the U-shaped members and bridge being uniform throughout.

No. 1,315,984. Mold for Manufacturing Plastic Blocks or Bricks. Charles J. Perkins, Chicago, Ills., patentee.

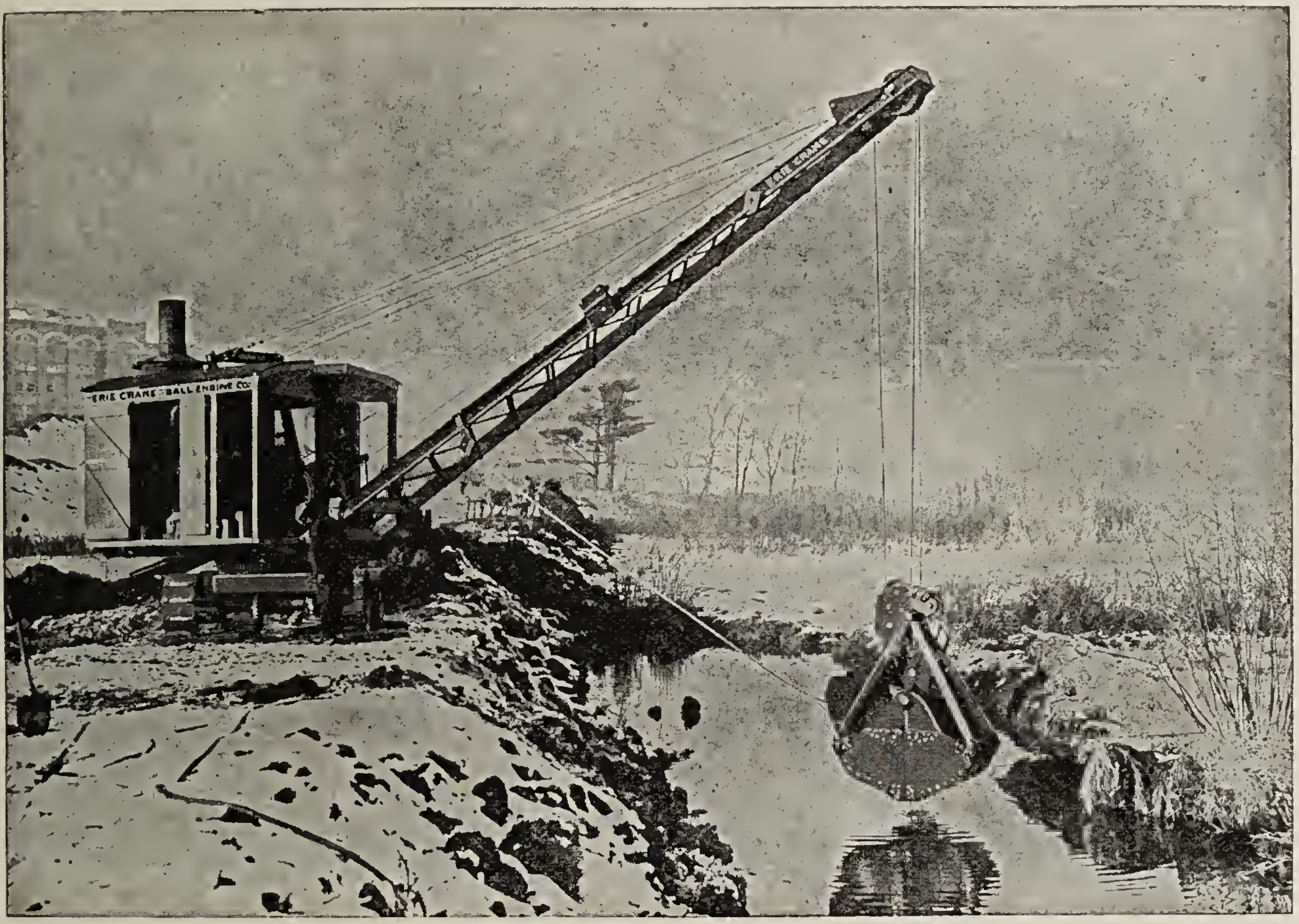
In a mold, spaced upper and lower members, means of connecting said frame members together, spacing sleeve members, detachably connected with the upper and lower frame members supported by the sleeves; angular-shaped core boxes, attached to the upper and lower frame members; detached reinforcing rod holder members and detachable transverse partition members.

No. 1,317,782. Brick Wall and Building of Same. Martin Eriksson, Djursholms, Sweden, patentee.

A building wall comprising brick laid horizontally and longitudinally of the wall in alternate courses of two and three, the courses containing two bricks being arranged on their sides with their outer edges exposed at the faces of the wall, and the courses containing three bricks being arranged on their edges to provide two longitudinal voids and to arrange the outer faces of the outer bricks at the faces of the wall.

A LABOR SAVING MACHINE WITH A WIDE VARIETY OF USES.

BULLETIN S-30 of the Ball Engine Co., Erie, Pa., describes their type B Erie Locomotive crane. The variety of uses is shown in the numerous illustrations, including views of cranes employed as a dredge, as a steam shovel, as a crane for loading or unloading cars, handling lumber, and drag line for digging an irrigation ditch. The satisfactory service from their crane is guaranteed by their claims that it is built to be the best crane on the market, rated to lift three to five tons, handles clam shell, orange peel or drag line bucket, car wheel and traction wheel mountings, interchangeable, an absolute trouble proof truck frame, hoisting engines enclosed and securely tied, quick and positive swinging action, and only three operating levers.



The Erie Shovel Being Operated as a Dredge.

The Erie Crane gives a most varied service. If you want to handle difficult excavating work, the crane can be changed over in a few hours to be fully equipped ¾ yard steam shovel. The Erie is designed and built to use as either steam shovel or crane.

Equipped as a steam shovel, the Erie handles road grading, cellar excavation, quarry work, trench digging, excavates clay or shale for brickmaking, etc. If you would like complete information regarding the Erie Crane, write the Ball Engine Co., Erie, Pa., briefly describing the material you handle, output desired and other working conditions. They will tell you just what the Erie can do for you, and you will not be under any obligations. See their ad on page 475 of this issue.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

PRICES AND DEMAND are both stronger than they were a month ago. Demand for common brick in every city of the state exceeds anything known in years. Manufacturers are sold up to their last burnings which are now in the arches and few of those who operate for the season only will have anything left when it closes. Not all have operated to capacity, but their yards have done more business than for a number of years, yet they are sold up to the limit of their production. With demand better prices have gone up and they are higher today than they have been for years, perhaps higher than ever before, excepting in isolated instances. Most interests are confident that they will be higher before they are lower and some are of the opinion that what has been termed low priced brick will never be known in the future. The halcyon time for the builder is over. Hereafter manufacturers are quite likely to obtain the price they should have, otherwise they will not make the brick.

Prices in Newark are around $19.00 at the yards. That means that brick have been shipped to yards for distribution. Jersey City is getting $18.75. Paterson is getting $18.50 and sellers say that price will be advanced shortly. Passaic is getting $18.25. Perth Amboy is asking $17.00. New Brunswick is satisfied with $16.00. Trenton gets from $16.00 to $18.00. Hackensack is asking $16.00 at the yards and $17.50 delivered. Englewood is paying as high as $20.00. Rutherford is asking $18.75. Ridgewood is charging as high as $19.00. Dover is getting $20.00. Other towns are asking and getting figures which are approximately the same as this list. And it seems to be the unanimous opinion that prices will go still higher in the future. It is quite impossible to determine what the advance will be, but it is understood that most manufacturers are looking toward the $20.00 mark before they stop their advances.

Not for years, if, indeed, it has ever been true before, has the number of building permits and the projects for the erection of all kinds of buildings been as numerous as they are now. Wherever one goes in New Jersey the same thing is true. All sorts of buildings going up, ranging from the small cottage or bungalow to the large public building, and the number between is so numerous that it is quite impossible to determine what the total may be. Apparently no one community is favored at the expense of another. All alike are sharing the present building prosperity and the outlook favors a further development of the same activity in the months to come. It is true that such operations will have to cease in the near future because of cold weather, but until the weather is too severe to work it is apparent that builders contemplate keeping at their business. The number of public buildings, such as schools, is so large that it seems as though cities and towns have erected no schools in a long time, while dwellings and business buildings are so numerous that they seem to cover the country. While those who are paying for them seem to think that the cost is excessive, it must be remembered that they are comparing erection expenses with those that prevailed back in 1913, and this is manifestly unfair. All conditions have changed since then and it is not right to compare prices in a world that has gone as far and as fast as this has since the war started six years ago. If prices are compared with other prices today they will be found reasonable, after all, and that is the only comparison that ought to be made.

Hackensack brick yards are burning their last arches for the season. They have not run to capacity this year, and some have not opened at all, but they have turned out much more than for a number of years. The price has been satisfactory and undoubtedly next season will see considerable development in the business. Shipping has always been a troublesome problem which has been profitably solved by the utilization of motor trucks and now the yards are in position to make brick and deliver them to nearby towns expeditiously and cheaply. When they had to depend upon the demoralized freight service accorded by the railroads it was difficult for them to do business profitably and several manufacturers ceased to try to try, but the motor truck has placed the yards back upon a basis which enables them to continue in business as profitably as ever. The schooners which carried the brick away for more than 40 years have been put in service in the coast trade and elsewhere and are worth so much more for that purpose they have never come back. With no railroads near and water transportation more or less disorganized by various reasons the yards turned to trucks and are now doing a good business. They can deliver in nearby towns as wanted and in time to keep their customers going. It was quite impossible to do that by rail, and water transportation has been impossible since the upsetting of shipping by the war.

Work on the plants that dry on open yards in the vicinity of Perth Amboy is closing, but others are still maintaining about their average output. They have had good business all the season since demand started and have scarcely enough now on hand and in the kilns to satisfy the demand which has developed. They hope to continue operations through the winter, with about the present force of help and by spring seem to think they will have sufficient to fill all early orders. They have been somewhat hampered by scarcity of help, but that has been partially overcome and the plants are better situated now than they have been a good part of the season. Wages are high, but inasmuch as the product is high priced, too, the conditions are not dissimilar from what they are in other localities.

Most plants around Trenton are closed, or are closing for the season. The last burnings are in the arches, with the exception of the few year-around plants, and manufacturers will shortly be done for the year. They have done better this year than they have for a long time, perhaps full as well as they have ever done. They look forward to better business next season and confidently expect to see a change for the better in all varieties of brick.

E. M. Rodrock, of the E. M. Rodrock Company, Paterson, is busy with brick and sewer pipe interests and says that business with him has increased very fast toward the close of the season. He has been fortunate enough to secure a number of good contracts and has others in view. His yards are the largest in the city and are surprisingly active for the season. Mr. Rodrock is a member of the board of public works of the city and has devoted a good deal of time to the duties of the office. Under his direction certain phases of public work in Paterson have greatly improved as compared with some previous administrations. A. L. B.

THE EFFECTS OF DRAINAGE.

That a deep soil is better than a shallow one is well known to every observing farmer. We say of certain fields "The soil is thin," by which we mean that the field has a shallow soil; the water may be so near the surface that the roots of the growing crops have a shallow feeding ground, for the roots of our crops will not grow in the water. Then a deep soil is better than a shallow one because the roots descend much deeper for plant food. In retentive clay soils we can have a depth of active soil as deep as we drain. Corn roots have been found at the depth of eight feet, and wheat roots at the depth of five feet.

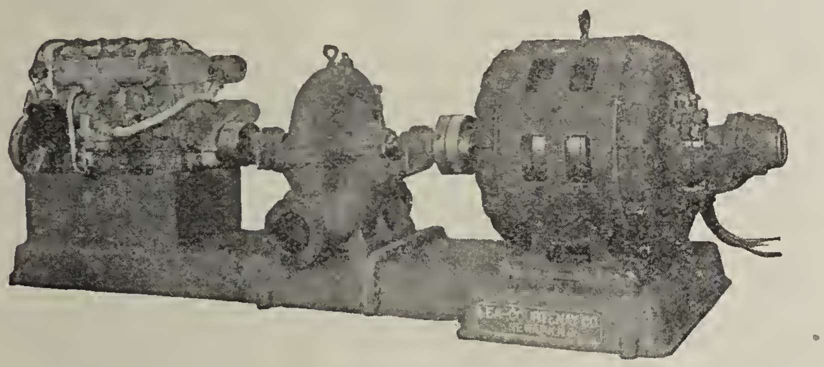
A drained soil becomes a great laboratory in which is prepared the necessary supply of food for the growing crop down as deep as the tile are laid. The water passing down through the pores to the drain below, is followed by the air freighted with fertilizing elements, which are absorbed by the soil, which the roots, following down through the same spaces, take up.

AN ELECTRIC MOTOR AND GASOLINE ENGINE DRIVEN FIRE PUMP.

IT IS ALWAYS desirable to have two independent sources of power for a fire pump so as to lessen the chances of its being put out of commission when a fire occurs. In some states, a double drive is required by the Underwriter's regulations.

The usual form of drive is a steam engine and electric motor, though where there are two separate sources of current two electric motors are frequently used. Sometimes neither steam nor a second source of current is available, and in that case a pump such as that shown in the illustration can be used.

Pump illustrated is of 1,500 gallons per minute capacity and is driven by a Westinghouse 150-H.P., alternating current motor and a 140-H.P. gasoline engine. It is built by the Lea-Courtney Company, Newark, N. J.



An Electric Motor and Gasoline Engine Driven Fire Pump.

DO YOU KNOW?

Do you know the young fellow who works for $25 a week and who is wearing a new winter suit that cost $85?

Do you know the wage earner who loafs because he is afraid if he does too much he'll "work himself out of a job?"

Do you know the housewife who is ashamed to be seen with a market basket on her arm or to carry home a brown paper bundle?

Do you know the manufacturer who, when the price of raw materials and overhead goes up 5 per cent. and the cost of labor advances an equal amount, adds 25 per cent. to the price of his goods?

Do you know the factory girl working for $18 a week who is buying and wearing a $350 fur coat?

Do you know the man who lets a fresh clerk sneer him into buying a $15 hat for fear he'll seem "cheap" when he can buy a satisfactory one for $7?

Do you know the investor who has traded his Liberty Bonds for a promise of a 100 per cent. profit in a stock company backed by a dishonest promoter?

Do you know the married couple who do not think enough of their children to buy War Savings Stamps for them and to teach them to save?

Do you know the shopper who says "Wrap it up" instead of "How Much?"

Do you know the person who lets the desire of the moment destroy the results of days and weeks of thrift and saving?

Do you know the man who thinks it is not necessary to save?

Do you know the man who says that the government savings securities, Liberty Bonds, War Savings Stamps and Treasury Savings Certificates are too slow or too small or too old fashioned for his investments?

IF YOU DO, YOU KNOW PRETTY WELL WHAT IS THE MATTER WITH THE UNITED STATES.

Written for The Clay-Worker.

THE NEW YORK SITUATION.

HUDSON RIVER BRICK manufacturers practically hold the key to winter building construction activity, according to The Dow Service Daily Building Reports early in November. To be sure, without common brick the contractor and architect has recourse to concrete in some types of construction enterprises. But there the inquirer for material is confronted by conditions created by the steel and coal strikes. railroad embargos, harbor congestion and other factors that do not offer him much encouragement. Concrete means reinforcement material and bars advanced $5 a ton or 3 cents base, Pittsburgh, while cement prices are generally reported to be in upward tendency, probably effective in this market around the first of the year. As a matter of fact conditions in that department warrant a price advance even now.

The alternative of using concrete involves the use of lumber for forms and there is a new price schedule showing higher levels than even those now ruling that is promised for this month. Price advances in lumber affects window sash, doors, rafters, flooring, roofing, etc. Alternatives of these commodities rest in the metal market which already shows signs of stiffening for a period sufficient to cover clearance of back log orders and the rapidly increasing demand for building purposes.

The only commodity upon which an active construction market for this city rests, therefore, is brick—common brick, that only a few years ago sold in this market at $6 a thousand, wholesale, dock, N. Y. or about $25 a thousand, laid in a wall. Even at $18 a thousand, dock, and $45 a thousand laid in a wall, the market is so famished today that a sale was reported in Staten Island at $20 a thousand, wholesale, with only one cargo available here on Saturday.

One fact stood out prominently: that no more brick arrived at the West 52nd street wholesale docks with the market at $18, than arrived when the market was at $14, $15 or $16. Leading brick manufacturers met up the river on Friday to discuss the problem as it was beginning to present itself to them. It was shown that the majority of the manufacturers who can do so, believed that they were best conserving the interests of the New York consumers by utilizing all the premium-paid men they can still retain at the yards in the manufacture of brick rather than in loading what brick they have for shipment into this market. Brick can even be shipped by rail in winter, it was argued, but they cannot be made on the open yard after the winter sets in. The concensus of the meeting seemed to be that the right thing to do was to produce all the brick possible while there was a chance to do so. Any day might see the end of the Hudson brickmaking season, already protracted long beyond the farthest brickmaking day the Hudson annals have yet shown, according to manufacturers.

Under this plan, it was pointed out, if weather conditions favored, it would be possible to make brick for some time yet, and then, just before navigation closed, large flotillas of brick barges could be rushed down the river to be "covered" at local docks, pending purchase and thus, perhaps, to break the high prices fostered by present dearth of this important building commodity. There are some purchasers in New York who have been conspicuously out of the market for the last month in anticipation of just this contingency so as to offset the advantage that Haverstraw manufacturers might have by reason of their plants being usually accessible to New York all winter, if demand proved sufficiently great to require the extra exertion.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Iowa Plants Consolidated Under New Name.

Dear Mr. Randall:

Replying to your several communications enclosing bills for subscription to The Clay-Worker and N. B. M. A. membership fee, I am enclosing herewith check for $7.00, covering both accounts.

I have taken over the Oskaloosa Paving Brick Co. and have consolidated same with the Harvey Brick & Tile Co., of Harvey, Iowa, under the firm name of the Standard Clay Products Co., with general offices at Oskaloosa, and as you may imagine the management of these two plants keeps me rather busy, for both plants are doing a fine business.

With best wishes for The Clay-Worker, I remain,

Yours sincerely,

T. J. NEISWANGER.

Keeps N. B. M. A. Reports as Reference Books.

Dear Randall:

This is to thank you for the missing copy of the N. B. M. A. convention report which you sent me. This enables me to complete my set. As you know, I have them bound from time to time, and find them very handy for reference.

We closed down our brick department the first of the month on account of the coal strike, as we had a large quantity of coal confiscated by the railroad company. We will, however, run our terra cotta department as long as we can, and perhaps by the time we have used up our present supply, the strike will be over. It surely has been one thing after the other for the last three years, and sometimes one gets discouraged, but if we have our health suppose we should be satisfied.

With kindest regards and thanking you for the proceedings, which I appreciate, I remain,

Yours fraternally,

M. E. GREGORY.

Corning, N. Y.

Wyoming Brick Plant Under Construction.

Editor The Clay-Worker:

You will probably be interested in knowing that the Big Horn Basin Clay Products Co. of Lovell, Wyoming, has started construction on their plant. The main drier and machinery room is four-story brick and heavy mill construction. All of the machinery and all of the lumber is on the ground and the work is being rushed so as to have the plant in operation by February first.

The plant will be fully electrified throughout. Gas will be used as fuel. The largest gas well in the world is at Lovell, three wells here each producing over fifty million feet of gas every 24 hours. The company owns 19 acres of land in Lovell, on the C., B. & Q. R. R., served with a private siding 4,400 feet long. The company also owns extensive beds of high grade clay suitable for sewer-pipe and glazed drain tile.

The officers of the company are: S. R. Jolly, President; W. B. Snyder, Director; R. E. Richison, Director; C. W. Guthrie, Director; W. Overpack, Director, Vice-President and General Manager; L. V. Stryker, Secretary.

Very respectfully,

L. V. STRYKER, Secretary.

Lovell, Wyo.

Pioneer Clayworker Retiring from Business.

My Dear Frend Randall:

Enclosed please find my check for subscription to The Clay-Worker.

While I have enjoyed reading The Clay-Worker in former years, I am virtually out of business. Last year we operated the factory but four weeks, and this year, about five.

Last year there was some demand for brick, but we were prevented from manufacturing the usual amount on account of Government fuel restrictions. This year, with the restrictions off, we have difficulty securing and retaining sufficient labor to operate the plant.

Besides this I am absent from the city for some time, as you know, when I make my annual trips to the Sunny South. It is evident therefore that I cannot keep up the former interest in the industry, with the drawbacks continually confronting, as at the present.

With best wishes, as ever,

Your friend,

Terre Haute, Ind. CHARLES W. HOFF.

Short Course in Ceramics to be Resumed at New York State School.

Editor The Clay-Worker:

It has been decided to resume the practice of giving a short course in Ceramics at the New York State School of Ceramics. As you no doubt know, a course of lectures and laboratory demonstration was given for several years, but owing to the conditions resulting from the war the course was omitted last year.

The demand for trained ceramic engineers is greater than ever before, many times exceeding the available supply. The entrance of these technically trained men into ceramic industries is having a telling effect in that all manufacturers are required to raise their standards and increase their efficiency in order to meet competition.

The object of the short course is to give managers, superintendents, foremen and workmen in ceramic plants an opportunity to gather in a few days a general understanding of the technology of the industry in which they are interested.

The course is arranged to cover all of the important ceramic industries and the subjects are handled by prominent men in the various fields of ceramics. Ample opportunity is given for discussion of any subject which may be raised, so that anyone having problems which are giving trouble will be greatly benefited by attending the course.

In connection with this course, there will be held a meeting of the New York State Section of the American Ceramic Society, occupying one afternoon and evening. The short course will run from the noon of December 15 to noon December 17, the meeting of the New York State Section of the A. C. S. will be held during the afternoon and evening of the 17th.

Programs will be mailed in the near future. It is hoped that every man interested in ceramics in New York State will avail himself of the opportunity afforded by these meetings. If you can not come yourself, send your superintendent or foreman. They are sure to gather information which will benefit your industry.

Yours truly,

Alfred, N. Y. J. B. SHAW, Secretary.

THE FUEL CRISIS

Representatives of the Structural Products Association Urge President Wilson to End Coal Strike.

As the last form of The Clay-Worker was being sent to press we received the following, telegraphed from Washington.

A conference of the representatives of the various structural materials industries of the nation was held in Washington, D. C., November 24. The delegates were summoned by John C. Frazee, of Philadelphia, executive secretary of the National Federation of Constructive Industries, at the suggestion of Ralph Stoddard, of Chicago, secretary of the Common Brick Manufacturers' Association of America, for the purpose of determining the fuel situation and its relation to the various industries connected with building lines.

The conference developed the fact that a disastrous fuel famine is imminent and that if measures are not devised to compel the resumption of coal mining that wide-spread suffering will follow, affecting every line of business throughout the land. After consulting with the executives of the United States Fuel and Railroad Administration all were convinced that if coal mining is not resumed at once a frightful toll of loss and suffering will ensue.

The conference adopted the following resolution offered by Theo. A. Randall, secretary of the National Brick Manufacturers' Association, and directed the chairman to send copies to President Wilson and the executives of the government dealing with the fuel problem.

An Appeal for Government Intervention.

Whereas, Representatives of the structural materials industries and other constructive interests of the nation assembled in conference by the National Federation of Construction Industries learn with deep concern that the present supply of coal is utterly inadequate for the needs of domestic and industrial purposes, and

Whereas, A calamity more appalling to the people of the nation than even the recent World War provoked, is impending,

Therefore, Be It Resolved, That it is the sense of the conference that the power of the government be at once and without delay invoked to compel the immediate resumption of coal mining, all questions of factional interest be waived pending the resumption of the production of fuel necessary for the life and welfare of all the people.

Unanimously adopted and respectfully submitted to the President of the United States and the executives of the government dealing with the fuel question.

THE CLAY-WORKER

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A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

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THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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☞ Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T. A. RANDALL & CO. [Inc.]. Indianapolis.

Vol. 72. NOVEMBER, 1919. No. 5

CURRENT COMMENT.

Keep the kiln fires burning.

* * *

Production is the watch word and slogan of the times.

* * *

There will be a great need for brick and tile next spring.

* * *

Turkeys may be getting scarce but pumpkins seem to be plentiful.

* * *

The passing of the wooden shingles marks the opportunity for clay roofing tile.

* * *

All feel the need to economize in fuel. The question is one of the ways and means to this attainment.

* * *

There are times when government by injunction is not only justified, but becomes actually necessary.

* * *

As a first step toward getting ready for that big gathering at Columbus, February 18-19-20, make sure that your name is enrolled on the N. B. M. A. membership list.

* * *

Keeping everlastingly at it is one of the characteristics of the National Paving Brick Manufacturing Association in the matter of good roads, and they keep featuring some good logic in their advertising dope too.

* * *

We all get through with going to the "public schools" while we are young, but the school of experience stays with us through life and we must keep on learning or fall behind. Plan to attend the National Convention at Columbus, February 16-20, 1920.

Face brick men will please face toward French Lick.

* * *

French Lick and face brick meetings are beginning to sound as if they naturally belong together.

* * *

Make machinery do your coal handling and some of your boiler stoking too. It will help to reduce fuel cost.

* * *

While the average man is seldom as good as he thinks he is, he is generally better than some one else thinks he is.

* * *

The right appraisal for a plant is that value which it would bring or be worth if sold at the time the inventory is taken.

* * *

Now, you fellows on the salary list, are you working with the boss or merely working for him? There's a difference, you know.

* * *

A whole lot of reclamation work can be done by individual farmers this winter through the use of drain tile. Push this idea along.

* * *

It is not a question of carrying over stock through the winter this time, it is a matter of getting enough made to meet the present demand.

* * *

Speaking of industrial conferences, capital and labor conferences, trade missions, and so on, we rise to remark that we seem to need more **doing** rather than so much **conferring**.

* * *

There are too many things of importance before the face brick industry for the progressive manufacturer to miss attending that gathering at French Lick Springs, Indiana, December 2, 3 and 4.

* * *

What is termed needed reform in our patent office and provisions is embodied in H. R. Bills Nos. 5011, 5012 and 7010, and it seems these bills should be made into laws. If interested, tell it to your congressmen.

* * *

In a recent address, William B. Colver, of the Federal Trade Commission, quoted this sentence from the law creating the commission. "Unfair methods of competition in commerce are hereby declared unlawful." We heartily agree to that, but what are we going to do when the commission itself fails to play fair?

ROAD BUILDING PROGRESS.

A special report from the Department of Agriculture indicates that the total expenditure on hard surfaced highways for 1919 will be $138,000,000. This is more than has ever been spent in one year for road building but it is only a marker of what is to come. It is estimated that the road building budget for 1920 will total $633,000,000. The items which go to make up this are: unfinished work on 1919 contracts. $165,000,000, the balance being from funds made available by states and counties complying with the federal aid requirements.

THE GOVERNMENT AND HOUSING.

In connection with the proposition of a government bureau of housing as a part of the United States Department of Labor, we feel strongly opposed to governmental action except that the action be limited to rendering assistance in financing builders through Federal Farm Loan banks and through the building and loan association.

Experience, both here and abroad, has demonstrated that any proposal for governmental aid in bureau form leads directly to government control. This in turn leads to red tape and waste, and a burden of cost which will not compare favorably with private enterprise.

The government may render assistance in financing the home building by legislation and this should help materially. But when the efforts go beyond this and involve the setting up of a bureau of direction, though the intentions may be the best in the world, the result is almost sure to be disappointing.

THINGS WORTH WHILE AT COLUMBUS.

Just as a reminder, it may be mentioned that Columbus, the convention city which is soon to be the mecca for all good progressive clayworkers, is also the place where new discoveries are being made from time to time in the science of clayworking. It is the home of the pioneer school for clayworkers, and by the way, the U. S. Bureau of Mines has a branch department at the Ohio State University, recently enlarged and equipped with the latest and most approved appliances for testing clays and clay products, which under the skillful direction of Prof. R. T. Stull will prove a valuable asset to the technical interests of the trade. Those who attend the convention will be expected to pay a visit to this interesting establishment.

GOOD RESOLUTIONS MATERIAL.

Maybe you consider the ice man a cold proposition, and hard-boiled in the matter of pride and sentiment, but if you do maybe you are wrong. At a recent gathering of the national association of the ice industry the president of the organization expressed a sentiment that holds good material for resolutions. The sentiment was this:

"There are few men interested in the ice industry who do not expect to leave their business or money invested therein to their loved ones. Very well, what have we to leave them—a clean business, a necessary business, an important business? This shall be as we will it. If the men present here today decide to leave a clean business, it will be because they will rid that business of all its evil practice before they depart."

What an appeal this thought should make to the clayworking industry, which is the oldest industry of history and it has much of sentiment woven into its history. Logically, therefore, not only should the clayworker find pride in his calling, but he should also find appeal in the idea of making his business a heritage to future generations, and a heritage which they may be proud to receive.

TIME FOR TILE TALK.

There are two great reasons why the clayworking industry should talk roofing tile and push the sale of roofing tile right now. One is the coming wider use of brick in building operations, which naturally calls for burned clay tile to complete the harmony of construction. The other is found in the fact that the roofing business is right now in a process of evolution or change. The shingle is passing, and one of the questions of the day is, what will come to take its place?

The most active and conspicuous offering right now is in what is termed composition roofing—made of paper and asphalt, asbestos, etc. Other recognized roofing materials are, clay tile, slate and metal. Slate and clay tile are both better than either metal or composition, yet strange to say, neither has been making any appreciable progress so far in this period of change. The great progress right now is being made by composition roofing. Why is this?

One answer is that the clay tile, while recognized as the best, is expensive and difficult to obtain. In this connection there is before the industry the question of whether or not it is practical to produce and distribute clay tile at a lower cost than heretofore. A claim is before the writer of a new method for making flat or shingle tile that will lower the cost materially. If this idea or method is good, or can make good, it is time for the industry to get busy with it, and if it is not, it is time for some research work and some casting around for ways and means to promote a more active development of the roofing tile business. We are coming into an era of brick home building unless the signs read wrong, and with this brick construction in the home there should go burned clay tile for the roofing. If there is something that holds and hampers the use of tile it is time for the industry to be getting after it. It is time to talk tile, and to talk it to some purpose, otherwise the coming brick home will likely be covered with composition roofing where it ought to carry burned clay tile.

OUR THANKS OFFERING.

If the souls of those pioneers of America who were moved by a spirit of piety to set up our annual Thanksgiving day could but look down upon the earth this year what a glorious hymn of thanksgiving they would sing for the annual harvest. The things for which they returned their heartfelt thanks in those bleak and meager days shows up in this country today as the most wonderful thing produced in this world by a nation of people.

Here in the form of current crop statistics are shown some of the things we have to be thankful for:

Index number of aggregate crop yields for 1919 is about 1.2 per cent. greater than for 1918. Total yield of five cereals for 1919 estimated at 5,321,353,000 bushels compared with 5,384,831,000 bushels in 1918.

Wheat crop estimated at 918,471,000 bushels compared with 917,100,000 bushels in 1918.

Corn crop estimated at 2,900,511,000 bushels compared with 2,582,814,000 bushels in 1918. This crop is the largest in six years, if quality is taken into consideration.

Oat crop estimated at 1,219,521,000 bushels compared with 1,538,359,000 bushels in 1918.

Barley crop estimated at 198,298,000 bushels compared with 256,375,000 bushels in 1918.

Rye estimated at 84,552,000 bushels compared with 90,183,000 bushels in 1918.

Potatoes estimated at 350,070,000 bushels compared with 400,106,000 in 1918.

Hay estimated at 103,544,000 tons compared with 90,443,000 tons in 1918.

Rice estimated at 44,261,000 bushels compared with 40,424,000 bushels in 1918.

Buckwheat estimated at 20,076,000 bushels compared with 17,182,000 bushels in 1918.

Beans estimated at 12,690,000 bushels compared with 17,437,000 bushels in 1918.

Apples estimated at 156,721,000 bushels compared with 169,911,000 bushels in 1918.

Tobacco estimated at 1,278,062,000 pounds compared with 1,340,019,000 pounds in 1918.

Sugar beets estimated at 7,303,000 tons compared with 5,890,000 tons in 1918.

Peanuts estimated at 51,590,000 bushels compared with 54,434,000 bushels in 1918.

When you sit down to your Thanksgiving dinner this year ponder these and other great things which have fallen to our lot, and try to commune in spirit with those hearty pioneers who founded both Americanism and Thanksgiving.

CHANGE IN DATE.

Canadian Clayworkers to Meet at Toronto January 20, 21 and 22, 1920.

The Eighteenth Annual convention of the Canadian National Clay Products Association will be held at Prince George Hotel, Toronto, Ontario, January 20, 21 and 22. This is a week earlier than was previously announced, the change being made in order to avoid conflict of dates with the Canadian Building and Construction Industries Association, which will meet in convention at Ottawa the last week in January. Secretary Keith writes that a fine program is in course of preparation and that an unusually large attendance is anticipated. Visiting brickmakers from the States will be welcomed heartily. A royal good time awaits every one who attends.

POTTERY SALES BRISK.

A decided increase in orders for domestic pottery is reported by all general ware manufacturers in the East Liverpool, Ohio, district, and some plants now have on file business that calls for August delivery in 1920. Practically all ware that can be shipped this year has been contracted for by buyers throughout the country, and all buyers who now visit the district are placing their orders for January, February and March delivery. In not a few instances business has been received for second quarter delivery. The jobbing interests throughout the country are anticipating their future requirements in a more liberal manner than ever before, and even Canadian buyers are looking into the future.

NORTON COMPANY BUILDING NEW PLANT.

Work was started late in October on the $250,000 plant for the making of the new Norton tile by the Norton Company in Greendale, Mass. The new plant is being erected on the company's property and will be complete in itself. When the building is completed, about January 1, several hundred machines, the value totaling well over $300,000, will be installed. The new tile is of a material similar to the grindstones made by the company at Worcester. Salesmen left recently for the European countries where the tile will be introduced. Officials of the company stated that the tile industry will be one of the principal products of the Norton Company in the future.

MRS. J. W. SIBLEY STRICKEN WITH APOPLEXY.

Mrs. J. W. Sibley of Birmingham, Ala., suffered a stroke of apoplexy Wednesday evening, October 22, while attending the wedding of a friend of her daughter, Miss Hettie. At first it was feared her attack would prove fatal, but she has recovered almost entirely, which will be glad news to the many friends of Mr. and Mrs. Sibley throughout the United States.

BUILDING BRICK SCARCE IN NEW YORK CITY.

The Hudson river district, according to the most authentic count, will close the year with barely 300,000,000 common brick left from a season that produced only a little more than half the 1,200,000,000 of a normal year. This may be further curtailed if the coal strike is long continued as soft coal is solely depended upon nowadays for tempering and burning.

The result of this low quantity production is that the entire New York building program for this winter is likely to rest in the hands of a few Haverstraw district brick manufacturers who will have the responsibility of meeting the biggest winter demand for common brick the district has known in recent years with the smallest quantity of basic building materials the Hudson river brick industry has ever recorded. It is unlikely that anything like the supply needed will be supplied by rail. Such added expense would put the price of this commodity under existing conditions around $50 a thousand laid in a wall. Such a price would be prohibitive even for the biggest building interest.

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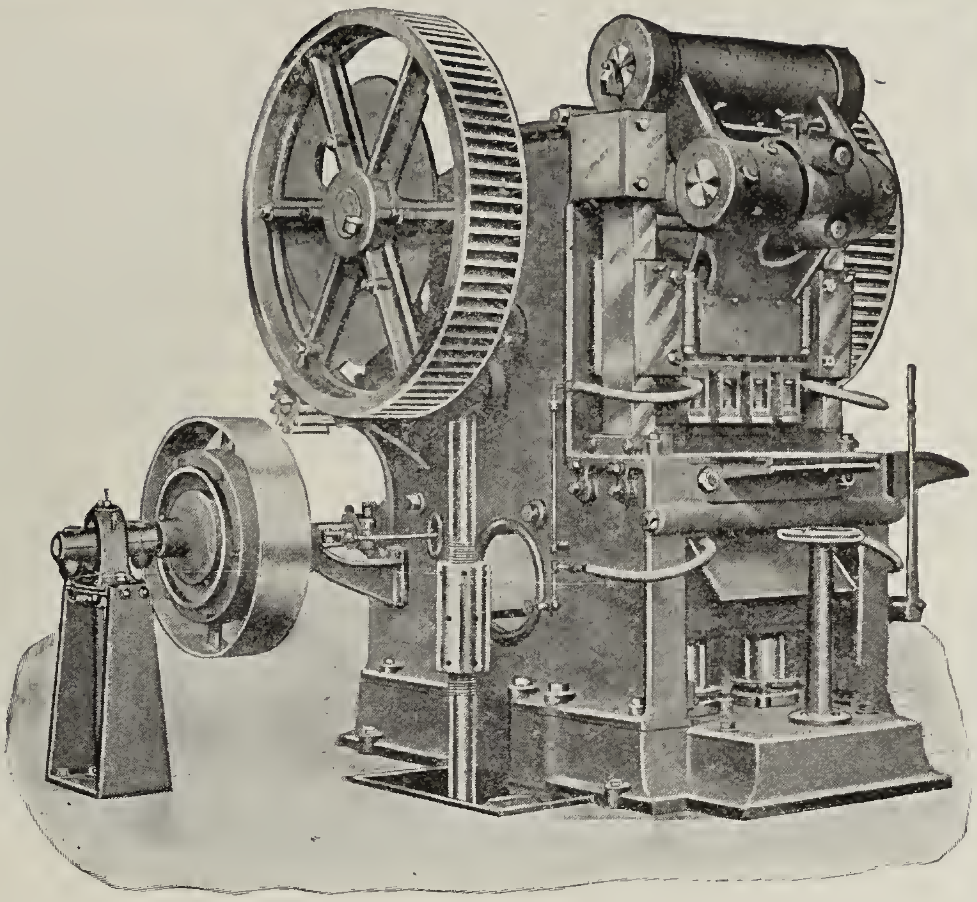
At the price hogs have been bringing, most every farmer should be able to floor his hog pens with paving brick, which should prove good for the pens as well as beneficial to the paving brick industry.

PRACTICAL CLAY TESTING
For Fire Brick, Face Brick, or Common Brick,
Full size Brick made and burned. Difficult Brick
Yard Problems Corrected. **L. W. FLOOD**
Lowe Ave., and 57th. St. **Chicago, Ill.**

"Built Right Run Right" Clay Plant Equipment.

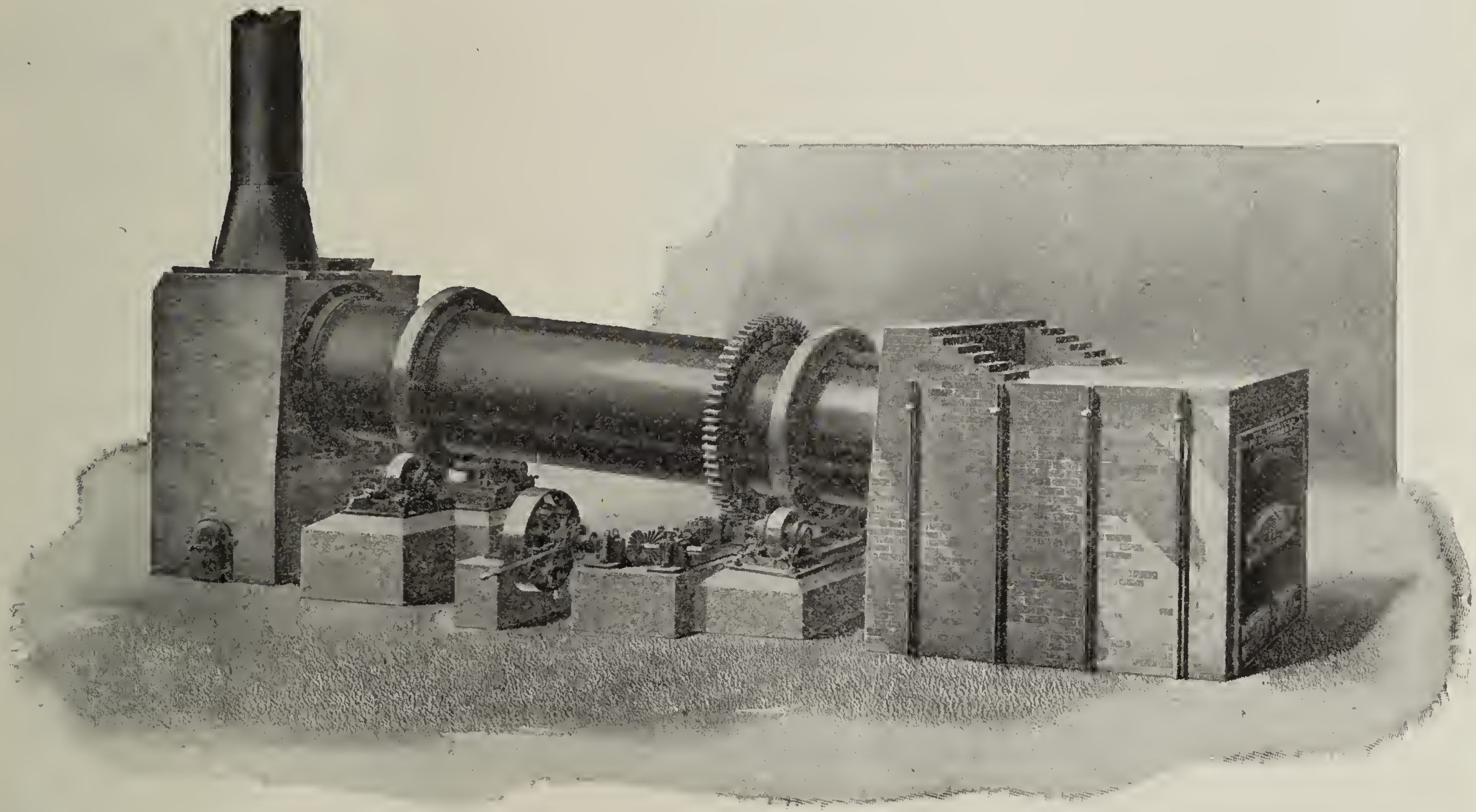
American Model "C" Dry Press

Just the press for its class of work. Experience has shown us how to build a satisfactory Dry Press and that experience is back of the American Model "C" We invite you to investigate this press. Read the specifications carefully. We will send them on request.



American Rotary Drier.

The American line of Rotary Driers has a splendid reputation and is used extensively. Send for specification sheet.



American Rotary Drier.

The American Clay Machinery Co.

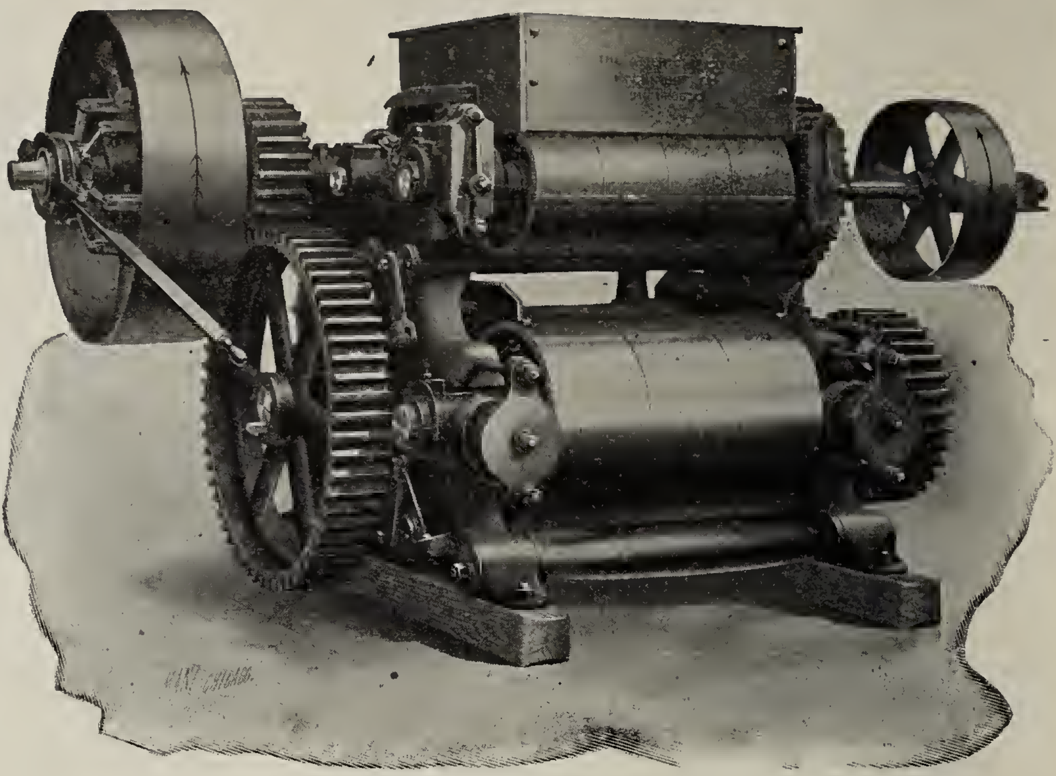
Bucyrus, Ohio, U. S. A.

BUILT RIGHT RUN RIGHT

"Built Right Run Right" Clay Plant Equipment.

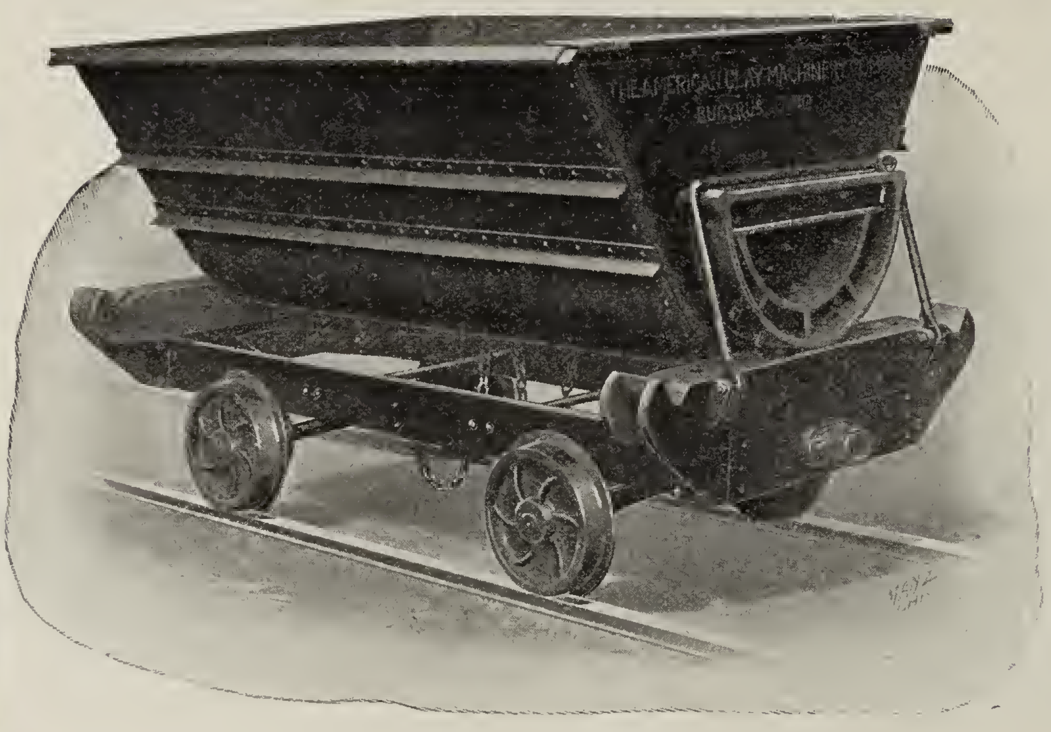
American No. 10-D. Crusher

There are no crushers better built than the American No. 10-D. It is superior in design and construction. It is faultless in operation. Description free.



American No. 10-D Crusher.

American No. 68 Dump Car.



American No. 68 Dump Car.

These dump cars are characteristically American in quality. You'll not be disappointed in them.

In design they are right. In construction they are faultless. In operation they are satisfactory. Get Car circular.

The American Clay Mch. Co.

Bucyrus, Ohio U. S. A.

BUILT RIGHT RUN RIGHT

"Built Right Run Right" Clay Plant Equipment.

EDITORIAL NOTES AND CLIPPINGS.

J. P. Krame, of Elizabeth City, N. C., would like catalogs and prices on brick machinery.

Work has been started on the new general ware pottery plant of the Pittsburgh-American China Company, at Greensburg, Pa.

The Coleman Coal & Clay Co., of Cleveland, Ohio, has been incorporated by Herman Quigley and others, with $25,000 capital stock.

The Commercial Club of Jefferson City, Mo., would like to get in touch with parties desiring to establish a brick plant in a live town.

The Birmingham Brick Co., of Birmingham, Ala., has been incorporated with $20,000 capital stock. C. S. Lawson is president and treasurer of the company.

Graham & Seale, of Lebanon, Tenn., will erect a common and pressed building brick plant at that place, and would be glad to receive calatogs of machinery and equipment.

The Decatur Brick Company and all its holdings has been taken over by The Decatur Brick Corporation, of which Paul Morrison is manager. The new company will enlarge the plant.

The Winchester Brick Co., of Boston, Mass., has been incorporated with $300,000 capital stock, by Arthur M. Leavitt, of Everett, Mass.; Margaret E. Buchanan, of Cambridge, and Mabel M. Gray, of Readville.

H. A. Smythe, treasurer of the Wisconsin Brick Co., of Madison, recently talked to the Rotary Club of that town on brickmaking. It is not often the wide awake brick man loses an opportunity to exploit his product.

The Beckley Brick Company, of Beckley, W. Va., will establish a brick plant at that place. The company has been incorporated with $15,000 by W. P. Robertson, J. M. Huffman, J. Q. Hutchinson and others, all of Beckley.

The Franklin Brick Tile Company is doubling the capacity of its plant at Taylor's Station, near Columbus, Ohio. C. W. High, civil engineer, who recently became associated with the company, has charge of the construction work.

The Torchlight Brick Co., or Torchlight, Ky., has been organized by Edgar McClure and C. E. Stafford to manufacture building brick, and possibly fire brick later on. The company is capitalized at $75,000. Mr. Stafford will superintend the erection of the plant.

S. Molinar, Jr., outfitting and commission merchant of the city of Juarez, Chihuahua, Mexico, writes that he would like to receive information relative to various prices and capacities of brick machinery for manufacturing pressed and "half pressed red brick," together with catalogues, etc.

The American Terra Cotta & Ceramic Company, Chicago, Ill., of which W. D. Gates is president, announces that new offices have been opened in the old Stanley Field Mansion at 1808 Prairie Ave., where there is ample room to show samples and wares, and generally give better attention to their patrons.

Charles Zink, of Belleville, Ill., injured at the plant of the Belleville Brick and Tile Company, will receive $2,808.00 and a pension of $18.72 for life under the terms of a decision handed down by the Illinois Industrial Commission. The decision awards one of the largest amounts ever given in a case of the kind. Zink is to receive $6.75 from the company for a period of 416 weeks after which the monthly pension will go into effect. Zink was hurt about the back and legs when he was caught under a fall of clay at the Kloess brick yard on October 26, 1917. His case was taken up with the Industrial Commission and he was awarded a total of $800 distributed over a certain number of weeks. The company then applied for a new hearing before the board and the request was granted by the judge, who held that Zink's injuries did not warrant so large an amount. The new decision, granting Zink far more than the first, came as a great surprise even to Zink's attorneys. It is said the company again will appeal.

Frank Sutter, of Pass Christian, Miss., advises us he is in the market for an equipment for using fuel oil in the burning of brick.

H. B. Downing is at the head of the Athens (Ga.) Brick Corp., recently chartered for $100,000. The plant is already established, has a daily capacity of 25,000, which will be increased.

The plant of the Spring Garden Brick Company at York, Pa., was slightly damaged by fire recently, which started in one of the outside sheds.

The Continental Pottery Co., of Roseville, Ohio, has been incorporated for $25,000 by Joseph B. Foster, C. M. Foster, Willard L. Pace, Luther C. Pace and M. A. Pace.

The Ray Tile plant at Rushville, Ill., formerly owned by Nicholson Brothers, of Chicago, was sold recently at public sale to the Macomb Sewer Pipe Works, of Macomb, Ill., for $18,000.

Harbison-Walker Refractories Company, Pittsburgh, Pa., declared the regular quarterly dividend of 1½ per cent. on the common stock, payable December 1 to stock of record November 20.

J. R. Poupore, president of the Red River Valley Brick Co., of Grand Forks, N. Dak., was married to Miss Elizabeth Maglone, October 20. Mrs. Poupore was associated with the brick company for a number of years.

The Best Brick Company, of Evansville, Ind., has been incoporated with $50,000. The directors of the new concern, which will erect a plant for the manufacture of brick and tile, are Walter P. Wood, Clarence E. Schutz and Theo. Gerke.

S. A. Kresge, multi-millionaire owner of the chain of 5 and 10 cent stores, has under contemplation manufacturing crockery for his stores, and has an option of the pottery plant at Mt. Clemens, Mich. If the deal goes through Mr. Kresge will at once double the size and output of the plant. If it does not go through, he will build a plant at Mt. Clemens.

The J. C. Boss Engineering Company is the new name of the reorganized John C. Boss Company, of Elkhart, Ind., so long and favorably known as the inventors and owners of the Boss system of burning and the Unit-Control Ten Hour Dryer. New men have been added to the force, and special attention will be given to engineering work, building brick plants complete and rendering technical service to clayworkers.

George F. Brown has assumed the management of the Delaware (Ohio) branch of the National Fireproofing Company, Pittsburgh, Pa., succeeding R. E. Thompson, who is retiring from the employment of the company. Mr. Brown has for the past seven years been superintendent of the Haydenville plant of the company, going to Haydenville from Pittsburgh, which was his home.

The Toledo (Ohio) Clay Products Co., which has just been incorporated for $100,000, plans to engage in the manufacture of brick, tile and clay building blocks. The original issue of stock is tentatively set at $75,000. The company will have offices in Toledo, but options have been obtained on land where material will be obtained, outside of Toledo. L. B. Kreke, real estate man, 623 Spitzer building, is interested in the new company.

The plant of the Independent Brick Company, Atlanta, Ga., which was sold a short time ago for a consideration of $200,000, will be enlarged soon and the capacity of the plant increased to 150,000 brick a day. The firm will manufacture tile as well as brick, and the John C. Boss burning and drying system will be installed. The remodeled plant will give employment to about 100 men. The officers of the reorganized concern are as follows: Edward Cox, president; Nelson Benton, of Augusta, vice-president; board of directors, W. J. Massee, O. J. Massee, and other stockholders not yet announced.

The four kiln flue and tile plant at Rogers, in the central part of Columbiana county, Ohio, north of East Liverpool, is to be placed in operation at once by Walter G. Rogers, whose offices are in the Wabash building at Pittsburgh, Pa. The plant which was first operated by the late John Hall, of East Liverpool, has been idle since the start of the war. It is equipped with machinery for the making of either sewer pipe, flue lining and flue tiles. There is a large volume of clay available in the vicinity of the plant which is also controlled by Mr. Rogers.

The Mansfield Shale Products Co., of Mansfield, Ohio, has increased its capital stock from $30,000 to $300,000.

Wm. C. Whitmore, of Leesburg, Va., writes that he is in the market for brick and tile machinery, and will be glad to receive catalogues, etc.

The Russell Clay Works, of Macomb, Ill., has been incorporated by Samuel S. Scott, and Clara A. Russell, with $10,000 capital stock.

The capital stock of the Jackson (Tenn.) Fire Brick Co., has been increased from $25,000 to $250,000, and the company will do considerable expansion work.

John Sime, of White Bear Lake, Minn., has purchased the brick yard at Fertile, that state. The plant, which has been shut down for two years, formerly did a good business manufacturing brick, hollow brick and tile.

The Murphysboro Paving Brick Co., of Murphysboro, Ill., have plans under way for the erection of a continuous kiln in order to enable them to meet the ever-increasing demand for their pavers, which they ship, not only to points in this country, but to Canada and South America.

Charles H. Frank, of the Hocking Valley Brick Company, Columbus, Ohio, reports that the company's two plants at Besonville and one plant at Logan, Ohio, are being pushed to full capacity to meet the unusual demand for their product. The plants will be operated right through the winter months.

The Springfield (Ill.) Clay Products Company, with a capital stock of $125,000, has been granted letters of incorporation. The incorporators are J. A. Long, W. C. Hoover, C. F. Headington and Earl H. Cartwright, of Portland, Ind. The company will manufacture drain tile, building tile and fireproofing. The factory will be erected on the site of the Springfield Drain Tile Company on Fox road, east of Bunn park.

Albert Thomas, a clay miner at the Pennsylvania Clay Company' plant at Fallston, Pa., was caught in a dynamite explosion and badly burned about the head and face. It is feared his sight will be destroyed. Thomas was preparing a blast and had placed the second charge in a vent in the clay bank when the first stick discharged, setting off the second. As he was but about 10 feet away from the charge he received the full force of it in the face.

E. F. Owen, formerly of Newell, it was announced recently, has incorporated the Electric Refractories Company, with a plant at East Palestine, Ohio, under the laws of the latter state. The capitalization is $15,000. The product of the company will be used in the electrical business. Mr. Owen is head of the Novelty Clay Forming Company, whose plant was removed from Newell to East Palestine about two years ago.

Construction has started on an immense building at the College of Mines at the University of Washington, Seattle, which will house the various laboratories of the college and as well that of the department of ceramics. The latter department, which was just established this fall, makes this the only college in the extreme west to offer this course. Dean Milnor Roberts, of the College of Mines, has recently returned from an extended trip east during which he conferred with the authorities of the Bureau of Mines at Pittsburgh and Washington.

The Chestnut Ridge White Brick Co., of which mention was made in the October Clay-Worker, was incorporated in Pennsylvania January 21, 1902; was reincorporated in New York March 4, 1911. Originally its business was confined to manufacturing and selling white face brick, but for several years past it has been selling all colors and kinds of face brick and fire brick, and of late, Pyrobond, which is a fusible fire clay. And now, after seventeen years under the old name, it has had its title changed to Chestnut Ridge Corporation to cover its several branches, without making any other change in its business or affairs whatever.

J. C. Steele & Sons, Statesville, N. C., write that they have more business than they have ever had before, almost twice as much, and are getting orders not only from points through the south, which they naturally regard as their particular territory, but as well from the far west, the middle west and the north. Much of their business has been installing new machines in old plants, having an especially heavy demand for their No. 6 machine of largest capacity. One of their recent orders was a brick machine and pug mill for the Carolina Shale Brick Company, at Charlotte, N. C. Taken all in all the indications for the new year are very promising.

The Independent Brick & Tile Co., Cleveland, Ohio, has taken out incorporation papers for a $300,000 capitalization. The company plans engaging in the immediate manufacture of tile to supply the shortage in Cleveland building. Officers of the company are: President and general manager, Herbert F. Geist, of the Geist Building Material Co.; vice-president, Clarence J. Neal, treasurer of the Neal Fireproof Storage Co.; secretary, William Thomas; treasurer, H. G. Renker, president the Ideal Products Co. Manufacturing operations are to be started as soon as equipment can be installed.

Big eastern demands for brick and a firm belief in next year's prospects for the brick industry is forecast by the improvements being made by the Baltimore Brick Company, at Baltimore, Md. They plan a number of additions and changes to their plant to take care of the increased business and have already started on the installation of a large twelve-track steam brick drier of the natural draft type built by the Standard Dry Kiln Co., of Indianapolis, Ind. A number of the eastern brickmakers are preparing for next year and any number of plants are being overhauled now in anticipation.

The manufacturing of vitreous china dinner and hotel ware in Chicago, Ill., within a short time is now possible through the organization of the "K. B. H. American China Co." of which John G. Hollmeyer is the head. The plant is to be located in Norwood Park, Chicago. Mr. Hollmeyer was in the East Liverpool district recently placing orders for new shapes and also for the purpose of buying machinery. The demand for hotel ware in the Chicago district is growing rapidly, according to Mr. Hollmeyer and the starting of the only plant of the kind in that territory is being looked upon as a keen business venture.

The Staunton Clay Products Co., of Staunton, Va., incorporated under the laws of the state of Delaware, with $300,000 capital, has given up its charter there and has been chartered under the laws of the state of Virginia as the Federal Clay Products Corporation, with a capital of $1,000,000. It is the purpose of the new corporation to erect a plant and buildings which will cost, including machinery, about $200,000, at North Mountain where the concern owns 2,300 acres of shale, a practically unlimited supply, fronting two miles on each side of the main line of the Chesapeake & Ohio Railway. Work on the plant is expected to commence in the very near future. In addition to the Staunton stockholders and officers, Messrs. C. H. and K. R. Forry, of Newark, Ohio, and several of the leading brick men of Richmond and Norfolk, are interested in the business. A. Lee Knowles is secretary. It is expected that when the plant begins operations, at least 100,000 brick per day will be manufactured and sold and in addition tiling, hollow clay ware and sewer pipe will be made, it being the purpose of the corporation to have within the next two years ten plants running with several hundred men employed.

DISABLED WAR VETERANS TO STUDY CERAMICS.

The first quota of crippled soldiers to undertake the study of ceramic engineering has been sent to Alfred University, Alfred, N. Y., where the New York State School of Clay Working and Ceramics is situated.

After a careful inspection of its course Dr. Charles A. Prosser, Federal director of Vocational Education, declared Alfred's school of ceramics one of the best in the United States.

The school was established in 1900 and yearly since then has added to its advantages. Situated in what might be called the center of the area where the pottery industry flourishes, it has given trained men to the important manufacturing plants nearby and sent others to sections of the country where other plants are starting. The school is under the direction of Prof. Charles S. Binns, formerly of the Royal Porcelain Works at Worcester, England.

Every forward-looking man should take pride in the idea of making his business a thing to be proud of.

WATCH IT GROW

Crescent Refractories Co.
Curwensville, Pa.
Abingdon Sanitary Mfg. Co.
Abingdon, Ill.
Standard Brick Co.
Crawfordsville, Ind.
A. P. Green Fire Brick Co.
Mexico, Mo.
Hampden Corundum Wheel Co.
Brightwood, Springfield, Mass.
Globe Brick Co.
East Liverpool, Ohio.

THEY HAVE CONTRACTED FOR

FURNACE GAS PRODUCERS.

What About You?

International Clay Machinery Co.

DAYTON, OHIO

Mention THE CLAY-WORKER.

Written for The Clay-Worker.

BUILDING AND BRICK NEWS OF EVANSVILLE AND SOUTHERN INDIANA.

CONSIDERABLE BUILDING has been started in Evansville and southern Indiana towns and western and northern Kentucky during the past month. Building operations in the city of Evansville for the month of October amounted to over $88,000 as compared to about $17,000 for the corresponding month of last year. Most of the building in Evansville is of a commercial nature, many additions to factory being either under construction or being planned for early next year. The contract was let a few days ago for the main building of the Monitor Furniture Co., which was incorporated a short time ago for one million dollars. When all the factory buildings of this company are completed it is said it will be the largest furniture plant in the world. All the buildings will be of brick and the day after the contract was let work was started and it will be rushed to completion. Plans are being drawn for a new church for the St. Joseph's catholic congregation which will be built on a vacant lot by the side of the present church in Evansville. The new church will be constructed of brick and will cost in the neighborhood of $100,000. The Lehman Manufacturing Co., of Cannelton, makers of special bodies for automobiles, has let the contract for the building of a large addition to their factory that will be made of brick. Boyle and Co., Evansville architects, a few days ago finished plans for the erection of several new brick buildings at Marion, Ky., that will be erected on the section of that town that was visited by fire several months ago. The International Steel and Iron Co., at Evansville, has let the contract for the erection of a brick and steel addition at its plant in Evansville. It will be a steel fabricating shop and will be 121 by 160 feet. The Standard Brick Manufacturing Co. has been shipping a great deal of brick into Kentucky during the past few weeks. John Andres, secretary and treasurer of that company, says he never saw the time when the demand for brick was so brisk in the cities and towns in northern and western Kentucky. The car shortage has been affecting the brick manufacturers some in the Evansville field and the miners' strike, while it is quite threatening, has not affected the brick and tile manufacturers to any degree as yet as many of the manufacturing plants have enough coal on hand to last them about thirty days.

At a meeting of the Evansville Real Estate Exchange a few days ago, a committee, headed by Henry C. Kleymeyer, manager of the Standard Brick Manufacturing Co., was appointed to look into the housing situation in that city and to make a report at the next meeting of the Exchange. There has been a shortage of dwelling houses in Evansville all summer. but it is said the shortage in that city is not as acute as it is in many other cities of the United States. Several companies have been organized in Evansville during the present year to erect houses but for some reason or the other little headway has been made in this line. As the result of the great scarcity of houses rents have advanced right along.

Maley and Wertz, hardwood lumber manufacturers at Evansville, a few days ago sent a big consignment of brick to Greenwood, Miss., where the company is building a large saw mill. The brick sold for $14 per thousand in Evansville, while in Mississippi the same brick would have sold for $22.40 per thousand. The brick was bought from the Standard Manufacturing Company.

Evansville is to have a new brick manuafcturing plant. The firm will be known as the Best Brick Company, with a capital stock of $50,000. The organizers of the company are Walter P. Woods, Clarence E. Schultz and Theodore Gerke, and articles of incorporation were filled a few days ago in the county recorder's office at Evansville. The firm is expecting to start some time next April and when the plant is running will turn out 50,000 brick daily at the new plant. The firm has a site of twenty acres of land adjoining the plant of the Standard Manufacturing Co., in the city of Evansville. Erection of the new plant has already started and it is expected it will be completed by the first of the coming year. Part of the machinery has been purchased, according to a statement of the incorporators. A large number of men will be given employment from the start and more workers will be added as they are needed.

The various pottery plants at Evansville are being operated on full time and the volume of trade done by the plants for this year will be much larger than that of last year.

A HOOSIER.

A NEW BRAND OF BUILDING BRICK.

The old saying that "there is nothing new under the sun" is refuted every day. We have an ocular demonstration in the form of a building brick, sent us by T. Severin, engineer, Philadelphia. The sample received is odd in shape, but Mr. Severin says that is just a happen so, that brick by his process can be made of standard size, or of any desired proportion. It looks in every way like an ordinary brick, but it is not. It is a hollow brick, but we had to break it open to determine that fact. Just how the brick is made is a trade secret, we take it, covered by letters patent issued to the inventor. The latter claims they can be made on any ordinary auger machine, automatically, without any diminution in output. The advantages claimed for the brick are several, namely, lass clay is used; less coal is required for burning; less hauling cost; quicker laying, and saving of mortar; less weight on the foundation; insulated walls; less insurance; cheaper construction.

The inventor is confident that his process will revolutionize the brickmaking industry. Perhaps Mr. Severin may be at the National convention at Columbus prepared to demonstrate the above claims; at any rate he has been invited to do so.

OVERDID IT.

"A police court isn't all grime and sorrow," remarked Judge White the other day. "Sometimes something really funny happens. Not so very long ago a chauffeur was brought in after having run down a man.

"'Didn't you know if you struck this pedestrian he would be seriously injured?' I asked.

"'Yes, sir,' replied the chauffeur.

"'Then why didn't you zigzag your car and miss him?'

"'He was zigzagging himself and outguessed me, your

PEACE AND WAR.

Mrs. Jones—"Why, surely that's Mrs. Jenks? Why is she going by without speaking? I thought you and she were such great friends?"

Mrs. Smith—"So we were, until my hubby and hers lost their tempers and nearly came to blows at the Peace Celebration meeting!"—The Passing Show.

PROVIDENT.

Hicks—"Where did you spend your vacation?"

Wicks—"I didn't spend it. My wife and daughter spent everything else I had and I thought I'd better save something."—Boston Transcript.

The Modern Way
1. Only one central coal location
2. Clean kiln yard
3. No cleaning of furnaces or relining them, or bag walls ever required
4. Minimum labor attention and responsibility
5. Much shorter kiln burning periods
6. Heavy saving of fuel
7. Increased burning capacity without additonal kilns.
8. A better and more uniformly burned product
9. Avoids smoke nuisance absolutely,
10. And many other advantages
PRODUCER HOUSE
The Old Way
1. Excessive and wasteful burning conditions
2. Requires wasteful manual labor
3 Longer kiln burning periods
4. Uncertain burning results
5. Expensive product wasted through improper burning
6. Heavy kiln repairs needed
7. Unsightly conditions, etc.

THE DAY OF FIRING KILNS BY HAND IS PAST

Hand firing kilns in most clay plants is tremendously wasteful. You are dependent on human element by hand firing—that means longer time than necessary. It is also impossible to get complete combustion by hand firing, and this results in a big percentage of fuel waste; besides, hand fired furnaces require many men where the plant is reasonably large, which are high priced and hard to get. Both of these problems and many others, too, are solved completely by the

UNDERWOOD PRODUCER GAS SYSTEM

(Patented)

This highly efficient patented equipment puts an end to wasted fuel by getting the very last unit of heat out of each ton of coal. It saves as high as 30 to 40 per cent. of coal, and similarly in labor in comparison with hand fired methods.

Our Gas System saves fuel because of its distinctive patented construction, insures completeness of combustion. It puts the maximum of generated heat in the kiln, thereby saving a big percentage of the heat energy that in hand fired furnaces is wasted in many different ways. Our Gas System cuts the cost of fuel requirements in another way by reducing from 40 to 50 per cent. of the time required for water smoking and burning, and it eliminates the smoke problem entirely.

The degree to which our Gas System saves labor is demonstrated by the fact that the coal can be brought from the railroad cars direct to the gas producer platform automatically, thus not only eliminating man-power, but also horses, carts, trucks, etc. Moreover, one man per shift can look after the burning of a dozen kilns and do it far better than six or seven men by hand firing.

Our Gas System reduces kiln investment when a greater burning capacity is desired or required, for it will accomplish with six kilns that which requires eight kilns when hand fired, and at the same time prolongs the life of the kilns indefinitely since furnaces do not burn out, bag walls are not melted down, crowns are not wrecked, there are no furnace irons to burn out, no furnaces to clean. Our Gas System has plenty of reserve capacity. It requires no auxiliary draft equipment. It is a time tested device that is already saving money for scores of well-known concerns, and has proven beyond any doubt the most profitable piece of equipment ever installed in a clay plant.

Peace did not end the labor or transportation problems by far. Coal must be conserved, and the labor end controlled, so take the step now that will help insure maximum efficiency in your plant, and send for full facts about the Underwood Producer Gas System. We can save you money—let us show you how.

The Manufacturers Equipment Co.

Dayton, Ohio, U. S. A.

Strong as a steel cable--

Gandy, the original stitched COTTON DUCK BELT, has all the strength of a steel cable with the tenacity, flexibility and longevity of specially processed cotton duck.

GANDY PICKS UP POWER LIKE A MAGNET!

Its enviable reputation is based on the performance of nearly 40 years in the transmission and conveyor field.

Gandy engineering service goes with every belt—power or conveyor—to insure the right belt—in ply and size—for each particular job.

Orders filled promptly from mill supply house or direct.

The Gandy Belting Company.
749 West Pratt Street, Baltimore, Md.
New York Branch: 36 Warren St.

Look for the Green Edge and *Gandy* Trademark.

GANDY BELT
Stitched Cotton Duck

Three Big Profits from The Galion Industrial Unloader

Time Saving

Time required for unloading fuel is reduced to 2 or 3 hours per car.

Time required for shoveling from ground to wagon is eliminated entirely.

Time required for loading wagon or truck is a few seconds.

Labor Saving

Labor required for unloading fuel by the carload is reduced to one man. The driver loads his own wagon, eliminating all hand shoveling.

One man does the work of a gang of shovelers.

Money Saving

The saving in time and labor results in a big saving in money—fuel handling costs are reduced from 25c to 35c to 2c to 4c per ton, depending upon local conditions.

The Galion Industrial Unloader is Built in Several Sizes and Types With or With out Storage Bins.

There's a size and type to meet every unloading requirement of clayworking plants.

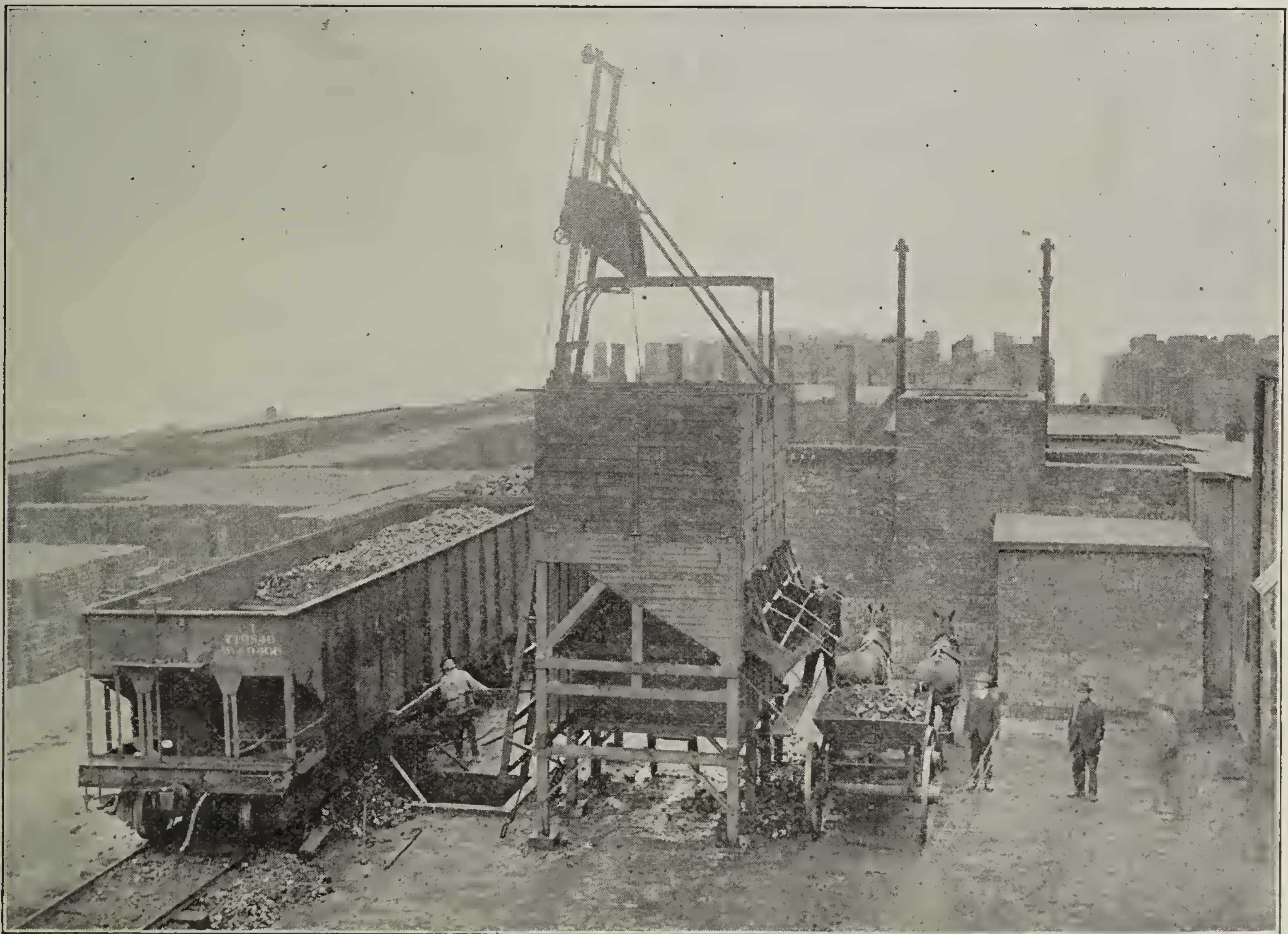
Every one is guaranteed to be a money saver and a profit maker.

Galion Industrial Engineers will be glad to consult with you on your fuel handling problems. This service is free to you and incurs no obligation.

Write for complete information and prices.

Industrial Division

THE GALION IRON WORKS & MANUFACTURING CO.,
204 Wyandot Bldg., Galion, Ohio.



The American Face Brick Association
And
The Face Brick Dealers Association
Will Hold Their Annual Meetings
December 2nd, 3rd and 4th at

French Lick Springs
"The Carlsbad of America"

Famous the world over for its glorious air and sunshine and the medicinal properties of its spring water. The weather is mild and delightful in the fall and winter and the temperature of the water is always the same.

Headquarters will be at

French Lick Springs Hotel

The Home of Pluto

Nearest to Everywhere of Any Resort

Golf, Ride Horseback, Motor, Hunt, Dance.

The hotel is conducted on the American plan. It accommodates 700 guests. 450 outsid rooms. 350 rooms with privat bath. 100 rooms with lavatory.

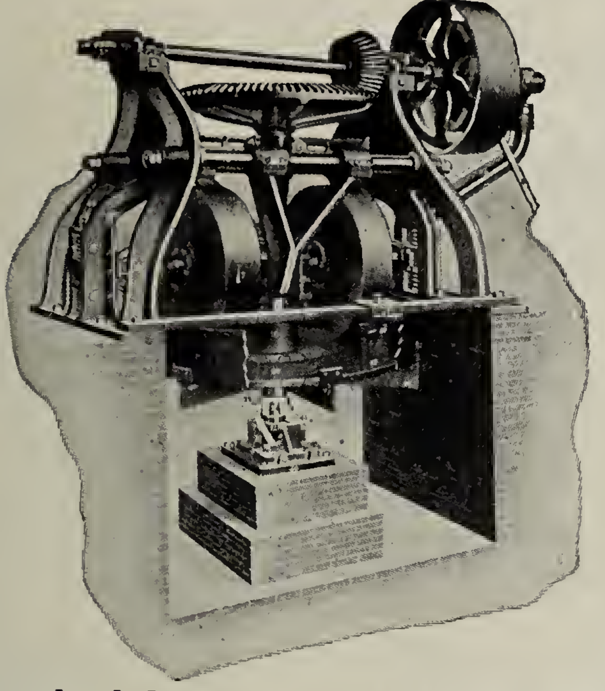
FRENCH LICK SPRINGS HOTEL CO.

FRENCH LICK, INDIANA

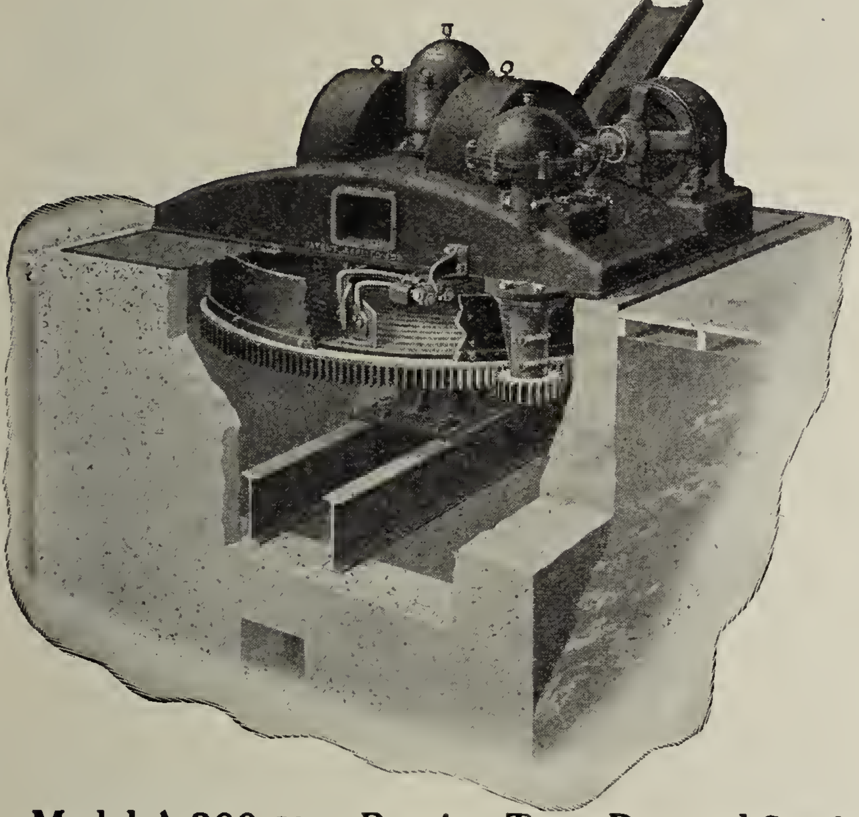
Thomas Taggart, Presidnt
Thomas D. Taggart, Mana g

On th MONON and SOUTHERN RAILWAYS

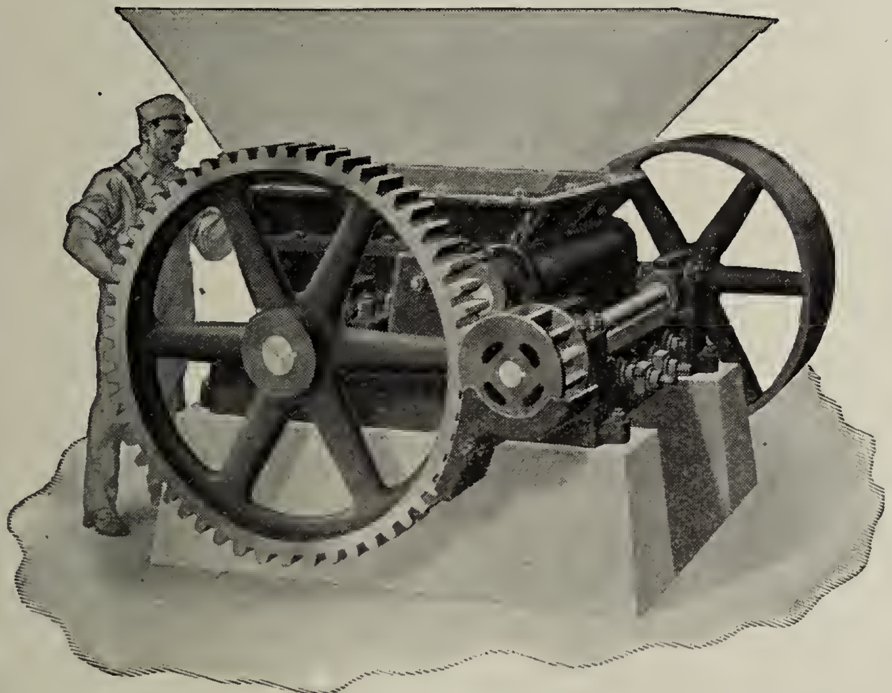
OPEN ALL THE YEAR AROUND



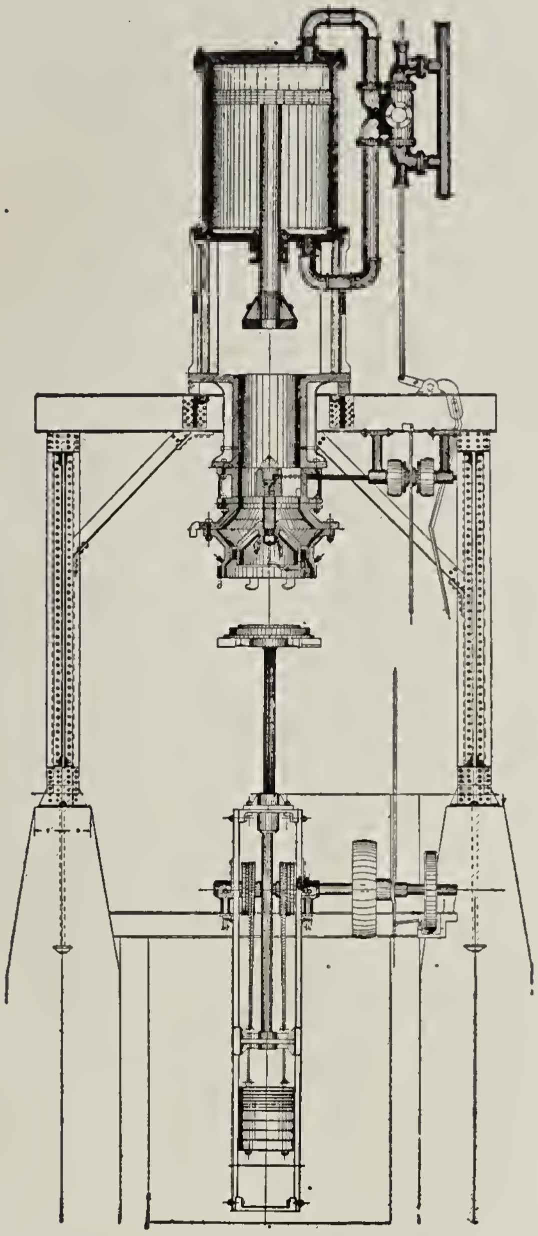
Standard Grinding Pans Made all Sizes



Model A-300 Step Bearing Type Dry and Semi Dry Grinding Pan



Single Roll Crusher



Sewer Pipe Press

Machines for
Crushing,
Grinding,
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Elevating and Conveying all Kinds of Materials.

Steam Presses for Making Sewer Pipe, Drain Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO.,

Gen'l Office and Works **Wellsville, Ohio**

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The Unfailing Counsel On Kiln Temperatures

The knowledge of the exact heat being carried now in any kiln is only as far away as the handle of your Brown Pyrometer.

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The right heats to be carried tomorrow—and every succeeding tomorrow, can be safely and surely determined by Brown's and maintained by Brown's.

A Brown Pyrometer Equipment—Indicators and Recorders, is an Infallible Counsel on Kiln Heats of the past for the present and future.

More than 81% of all pyrometer-equipped ceramic plants use Brown's. This fact is your logical guide, your assurance of satisfaction and profit. Write today for complete information to The Brown Instrument Co., Philadelphia, or one of their District Offices in New York, Pittsburgh, Detroit, Chicago or St. Louis.

Brown Pyrometers

The World's Standard Heat Meters

Written for The Clay-Worker.

CINCINNATI BRICK AND BUILDING NEWS.

While there has been only a nominal amount of construction work done this year, the advance of cooler weather is having the effect of slowing up some of this, and the reports indicate that the next few months will see a decreased demand for clay materials. Most of October here was a period that was calculated to interfere with building operations, there being rain on twenty-one of the thirty-one days in the month. Of course, this has had somewhat of a damaging effect on the general situation, which has not been any too bright otherwise. There are a number of fairly large projects under way or being contemplated, and this is a help, but the lack of residential work has been less by a good deal than could be hoped for, in spite of the lack of homes.

With regard to this question there has been a most urgent need for homes, and still the same disinclination to build, due to high prices of material and labor. The situation is not, therefore, as favorable as it might be, and the clay material men are feeling the effects of this want of structural work. There is not much to look forward to now, and with the winter at our doors, the amount of outside work that is likely to be contracted for now is not going to be large.

The number of permits issued here during the month of October make a very fair showing, in spite of the adverse conditions that have obtained, and these were about three times larger than they were for the same month last year, which is at least a promising report. The report of Building ing Commissioner George E. Rendigs for October shows that 1,032 permits were issued, the estimate cost of the same being $946,670. The number of permits issued for October, 1918, was 804, and the estimated cost of these was $331,775. This is not so bad a showing when we see that for the ten months of 1919 there were issued 10,730 permits at an estimated cost of $9,745,430. For the same period in 1917, showed 10,280 permits, at an estimatd cost of $8,452,306, and for 1918, there were 8,421 permits, totaling a cost of $4,318,478.

An invitation has been sent out by the local members of the Face Brick Dealers' Association, to all members of either the manufacturers' or dealers' branches of the two organizations, to plan to attend the annual convention of the above organizations to be held at French Lick Springs, Ind., on December 2, 3 and 4, to come via Cincinnati. There will be special sleepers chartered, so that the members who can plan to come this way, will be able to enjoy a more pleasant trip. The local members and those who go from this city, will leave on the night of December 1, at 9 p. m., in special cars.

While on a recent visit to this city Queen Elizabeth of Belgium was taken through the large plant of the Rookwood Pottery Co., where the intricacies of the same were shown her by Mr. John D. Waveham. As a memento of the occasion the queen was presented with a very beautiful vase, then in the making, and which will be sent to Belgium when it has been completed. She was charmed with her visit to this large establishment.

A large automobile assembling plant will be constructed for the Sayers and Scovill Co., on the east side of Spring Grove Ave., between Ammen and Durham streets. The plans have been prepared by Tietig and Lee, architects, and the building will contain 100,000 square feet of floor space. The exterior of the building will be of Gothic style of architecture, and it will have a frontage of 80 feet on Spring Grove Ave., with a depth of 353 feet. It will be of three or four stories. Plans call for an extension of the plant and the total, which will not be completed for some time, is to cost about $500,000.

About $100,000 is to be spent by the Ahrens-Fox Fire Engine Co., Camp Washington, O., for the building of a three-story addition to its plant, fronting on Colerain Ave., where some additional property has been purchased. The increased space has been due to the increased demand that has been enjoyed by the company for its fire apparatus.

Ground has been purchased by Antioch Temple, Ancient Order of the Mystic Shrine, of Dayton, O., at the northeast corner of First and St. Sinclair streets, for the building of a mosque to cost $500,000. It is said that the new temple will be the handsomest in the United States.

John C. Ruehlman will build a large flat building at the southeast corner of Harrison and Montana avenues, Westwood. Work may not be started until spring.

A brick residence will be constructed by Nathan Shapiro to cost $30,000, at the intersection of Burton Woods lane and Redbud Ave., Avondale. Architect Harry M. Price is preparing the plans. It will be two and one-half stories high, 64 by 32 feet.

The Cincinnati Real Estate and Building Co. will build eighteen bungalows and duplex apartments, eight in Clifton and the balance in Avondale. The same company will also build seven brick bungalows and a brick duplex, the latter to cost $13,000. The bungalows will cost between $6,800 and $10,000 each. Other buildings will be erected by this company.

Harry M. Price, architect, has made plans for two ten-room brick residences for the Weiner Realty Co., to cost about $18,000 apiece. The houses will be erected on Rose Hill Ave., Avondale.

Carl C. Walters, who was formerly identified with the Hydraulic Press Brick Co., has been made manager of the brick section of the Moores-Coney Co., and the situation here is reported to be only fair now.

There have been a number of delays in completing the new display rooms of the Cincinnati Clay Products and Supply Co., and on this account there has as yet been no formal opening of the same. The final details will be worked out within a few weeks, and the novel show room will then be open for inspection. The reports are that business has been only fair.

The Builders Material Co. is not very active now, and with the coming of winter there is not likely to be very much in the way of new business noted.

Reports with the Cincinnati Clay Co. are that the demands have been moderately good only. The year has not been conducive to much in the way of building materials, and the future is not as promising as it might be, owing to the unsettled conditions with regard to labor.

The Purcell Brick Co. note that the demand for face brick has been less active than it was earlier in the year, and the indications for the winter months do not hold out any very flattering aspects at this time.

There was a meeting here recently of the common brick men to take an active interest in the campaign being inaugurated for the purpose of urging the use of brick. The meeting was held at the offices of the Cincinnati Clay Products and Supply Co., and was very well attended and subscribed to, the idea being received with much favor. The meeting was called by Secretary Stoddard of the Common Brick Manufacturers' Association.

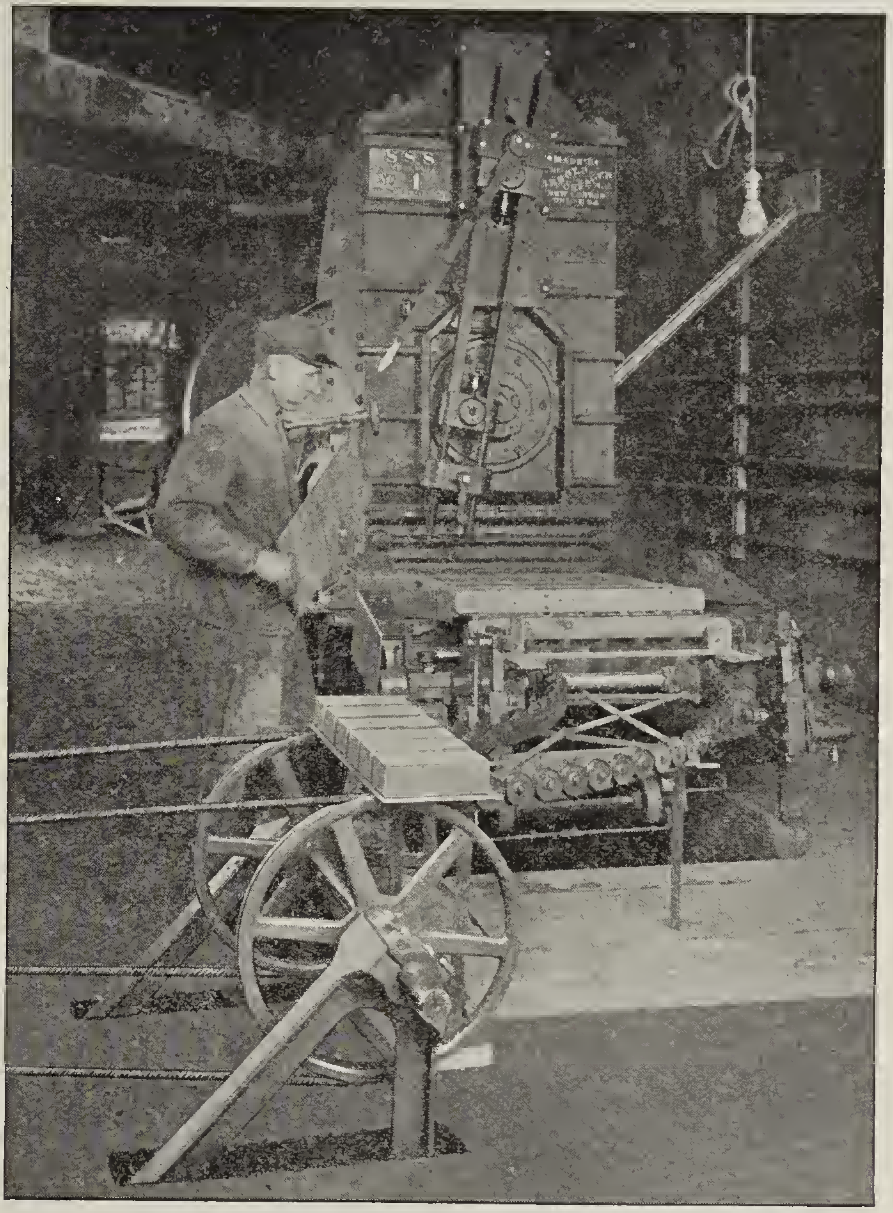
CINCY.

Striking while the iron is hot is a different kind of striking from that which has been epidemic this year.

* * *

Quite a share of our so-called unrest seems due to the activities of crack-brained agitators who ought to be arrested, or restrained in some manner. Those of foreign birth should be shipped back to their native land.

The S. S. S. Special
Automatic Soft
Mud Brick Machine



The S. S. S. Special is the **ONLY** Automatic Soft Mud Brick Machine.

It is Brick Machine, Bumper, Dumper and Sander all Combined in one Great Machine. It Saves Labor and Improves your Product.

The S. S. S. Special
Means
Improvement
Advancement
Progress

The Arnold-Creager Co.
New London, Ohio.

Classified Advertisements.

FOR SALE.

FIRE CLAY PROPERTIES COSTING $650,000, NOW $150,000.

I have for sale in the state of Illinois, two valuable clay properties with inexhaustible supplies of red and blue shale, as well as fire clay of the very best quality. The first has eight down-draft kilns of 100,000 brick capacity each, connected by tunnels with a brick stack 100 feet high. The plant is complete with modern machinery ready for operation for the manufacture of vitrified brick. Also one Vulcan steam shovel worth $20,000.

Thirty-five acres of land, underlying which is a bed of blue shale 80 feet thick. Under 20 acres of this is a 6-foot vein of coal. Switches and tracks to railroads, convenient to markets.

Cost originally, $250,000. **Can be purchased for $100,000.** Can commence manufacture of brick at any time.

The other plant consists of 240 acres of land in fee, with a 30-inch vein of coal immediately over an inexhaustible supply of red shale and very best quality fire clay (see Geological Report of State of Illinois). Coal, shale and clay delivered to plant on inclined railroads from adjoining mines. In addition, the owner has mining rights in fee of 1,050 acres with deposits of coal and fire clay, also 440 acres leased land. No hoisting necessary. Plenty of brick buildings for employes. This plant has 10 down-draft kilns of 1,000,000 brick capacity—all in first-class condition. This plant represents an investment of $400,000. **Can now be purchased for $50,000.** This plant would need new and modern machinery.

Both the above properties were shut down and passed through receivership at the outset of the European War. Full information to anyone interested supplied. In the hands of the right parties, either can be operated at a profit of $100,000 per annum. Call, wire or write,

CHAS. A. VALLETTE,
412 Central National Bank Bldg.,
11 2 cm St. Louis, Mo.

WANTED.

An American No. 1 Giant clay machine. State condition.

Address S & M,
11 3 d Care Clay-Worker.

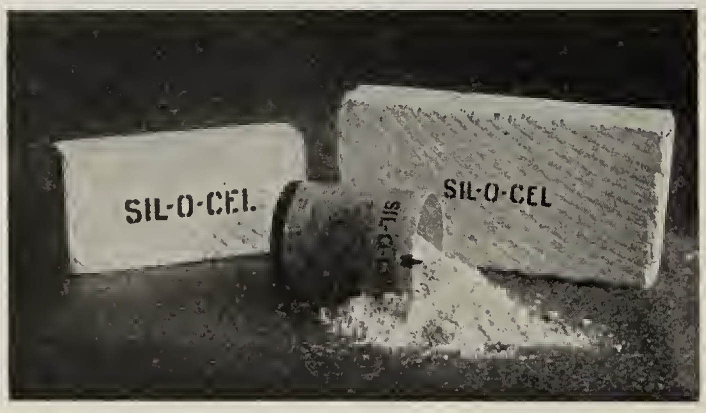
WANTED.

A good ceramic man with some practical experience by ceramic engineering company. Address C. E. C.,
Care The Clay-Worker.

FOR SALE.

Entire brick and tile manufacturing plant now being dismantled at Amenia, N. Y. E. M. Freese & Co. pug mill, capacity 50,000 daily, with hollow tile and pipe attachments, Freese wire cutter for same. Pittsburgh tunnel dry room, with 125 drying cars, double deck, steel frame, wood slat, 26-inch gauge, 7 feet over all. 3,000 feet 5 to 10-lb. rail, etc. Six-foot dry pan. Disintegrators, 2 feet by 1½ ft. 75 kiln furnaces and grates, 8 ft. long and 12 in. wide. 100 ft. Mathews gravity brick loader and stands. 10 by 8 double drum (34 in. diameter) hoisting engine, double cylinder, reverse gear. 1,500 feet 1½-in. cable with chain, 2 drag buckets, trolley, etc. 3 steam pumps, 150 feet 6-in. galvanized rivited pipe, 2,000 wood pallets, 12x26-in. New complete power plant transmission. Everything connected with a fully equipped pressed brick plant. For sale very cheap. Prices and specifications on application. Machinery is all in excellent condition.

IRVING K. POLLEY,
South Norwalk, Conn.
or
Care AMENIA INN,
10 1 cm Amenia, N. Y.



SIL-O-CEL Brick, Block and Powder

Uneven Kiln Temperatures Have Been Overcome

wherever SIL-O-CEL insulation has been applied

SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

insulation keeps the heat in the kilns and prevents radiation losses. By gaining control of kiln tempertures it is possible to increase production and reduce rejections.

SIL-O-CEL has the lowest thermal conductivity of any insulating material-being less than one tenth that of firebrick. Kilns insulated with SIL-O-CEL insulation have shown a remarkable increase in efficiency due to the effective conservation of heat. Write nearest office for Bulletin on Kiln insulation.

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SAN FRANCISCO
Monadnock Building

THE CLAY-WORKER

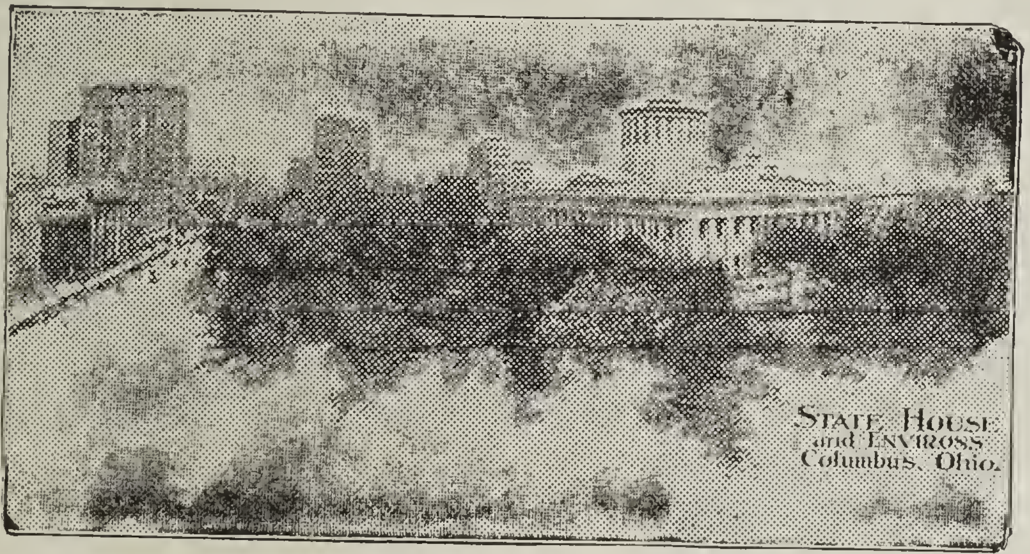
THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. 72. INDIANAPOLIS, DECEMBER 1919. No. 6

THE CONVENTION CITY:

The Hub of The State about Which Revolves Social, Educational and Political Interests of Nation-Wide Importance. Some of the Many Attractions of Columbus of Particular Interest to Clayworkers, who will Attend the Conventions of the N. B. M. A. and Affiliated Organizations February 16 to 21, 1920.

COLUMBUS is a city of brick homes, and hence, in addition to its well-known advantages as a convention city, is a fitting place for the assemblage of manufacturers of brick. While many of its low-priced residences are still of wood or frame construction, yet for many years probably a larger per cent. of the residences of Columbus have been built of brick than that of any other city in the country. Moreover, these residences are not only of brick, but the exterior surface is of face brick. One reason, doubtless, that gave Columbus this superiority is that of its having been for many years the center of the face brick business of Ohio and a low-priced market for face brick, especially for seconds and thirds, which, when properly laid, make handsome walls that cannot be told from first-grade without close examination. The result has been that the residence sections of the city show a pleasing and interesting variety of colors and textures of brick facades and that the architects of Columbus have specialized in brick construction. Moreover, in Columbus, as in many other cities, most residences are not built by the home owner himself, but by men who make a business of building and selling the completed home for the citizen of moderate means. These men have found that the houses that are most readily salable and at the best margin of profit are those built of brick, and so the largest and most prosperous builders do not erect houses of wood.



The Picturesque Dome of the Ohio State Capitol, One of the Conspicuous Features of the Convention City.

Some interesting facts of comparative costs of brick houses could be obtained in Columbus by those who are to meet here in February with the main purpose of promoting the use of brick, and it is to be hoped that data will be collected and presented and that opportunity will be given for all visitors to see the residences of Columbus. With these facts could be obtained many superior designs of brick houses of low cost. The mistake made in previous efforts of this kind has generally been that the designs were of houses costing too much money. The man who is going to build a house costing ten thousand dollars or more doesn't need much persuasion to build of brick, for he has generally investigated and become convinced that brick is the most suitable material. The missionary work should be done among those who build houses costing from three to five thousand dollars. This class of builders have sort of inherited the belief that a brick house costs so much more than a frame house that it cannot be considered by the home owner of small means.

The problem for manufacturers who are entering upon a campaign to promote a more extended use of brick is to prepare facts and figures, pictures and plans that will show without much argument that a house of the artistic and imperishable burnt-clay is within the reach of all who build, and that the first cost can be brought down to near that of substantial construction of any material. And such effort is surely worth while for you, manufacturers of building brick, if you believe in your product and would take the surest and most logical course to increase your business, since, though the quantity of brick required for the small residence may seem insignificant, yet the aggregate is large and the demand for more homes in every community is unfilled. Think what a vast increase in consumption there would be if even one-half of this class of houses were built of brick. Stores, factories, schools, churches and public buildings of all kinds are quite generally built of brick and very little promotion is necessary. Unquestionably the most promising field is residence building.

Terra Cotta Flag Staff Base, on Union Station.

But I am digressing, and what I started out to say must now be given briefly. Every brick manufacturer has certain duties that ought to be self-evident, among which may be named the following:

1. He owes it to himself to take an active interest in the advancement of the industry in which he is engaged. The more prosperous the industry as a whole, the more progressive and prosperous the brick manufacturers of his district, his competitors, the greater will be his own prosperity and the greater the satisfaction that he will derive from the occupation by which he earns his bread and butter and supports his family and maintains his standing as a citizen of his commonwealth.

2. To accomplish much for his industry he must ally himself with all organizations formed for improvement, whether of methods of manufacture or methods of conducting the selling of his product or increasing a demand for it.

3. First, he should give such time and money as may be necessary to maintain an organization of the brick manufacturers of his district for social and business intercourse, for discussions of the cost of production, terms of sale and the ethics of competition. This organization should be affiliated with national organizations for combined action in placing the industry on a higher plane. Each member of the local organization should be a member of the national organizations.

4. The national organization should be two-fold in character, or, preferably, there should be two separate organizations, one for investigating and discussing problems connected with the manufacture of brick and allied products, and the other a purely commercial organization for studying brick manufacture as a business, cost systems, selling methods, prices and credits, and for vigorous, systematic advertising of the superiority of brick for construction purposes, with a view to increasing the use of brick, somewhat as is done by the producers of lumber and cement.

The latter association must necessarily cost more for operation than the former, but to many the benefits would be more substantial. Such an association must also be limited to the brick manufacturers themselves.

5. The educational organization, the National Brick Manufacturers' Association, has been in existence for the past thirty-four years and has been supported by the largest and most progressive manufacturers of brick in America. It also admits to membership any one whose interests are directly or indirectly connected with brick manufacture. Hence, a valuable part of its membership is composed of manufacturers of brickmaking machinery or those engaged in the building of dryers, kilns or other equipment for brick plants. It also welcomes among its membership the practical man who is engaged in any capacity in any department of brick manufacture, whether he be an investor in the business or not.

The N. B. M. A. also provides a fund for carrying on scientific investigations of technical problems. Its work in this line has been of great value to the industry.

Though the annual dues are small, only $5.00, with no assessments, yet strange to say the association has not been adequately supported. Those who attend the conventions pay their dues, as also do some others who do not attend regularly, but most brick manufacturers evidently look upon the matter lightly, read and benefit by the free publication of our transactions and let others pay the bills. They do not realize how much more the association could do in the unlimited field of technical investigation if it had a larger income.

6. Commercial organization of brick manufacturers has

been, until the past year, confined to special branches of brick manufacture, paving brick, face brick, fire brick, building tile, drain tile. etc. Now, however, there has been formed what should be, as it has every indication of being, a permanent National Association of Common Brick Manufacturers. The need of such an organization has long been recognized, and now that it has been started right, it should be supported by every manufacturer of common brick. The benefits of such an organization cannot be questioned, and if all join it the expense will be light and add very little to the cost of brick.

7. Every manufacturer of brick or other structural clay products of any kind and every manufacturer of or dealer in equipment used in the production of brick, should be an active member of the National Brick Manufacturers' Association, no matter to what other branch organization he may belong. He should attend its meetings, if possible, but if not he should keep up his membership by paying his dues. How, after consideration of the subject, he can do otherwise is inconceivable.

8. Every manufacturer of common brick should join the Common Brick Manufacturers' Association and help to make the industry and his own business more prosperous and help to spread the knowledge of the virtues of clay brick as a building material.

9. Columbus is a central point, easily accessible from every direction. The city has every facility for entertaining large bodies and knows how to do it. Don't fail to spend the week of February 16-21 with us. You will be the richer for it all your days.

W. D. RICHARDSON.

One of the lessons we have pretty thoroughly learned now is how to appreciate the value of that necessity called coal.

The Beautiful Brick and Terra Cotta Entrance to Union Depot, Columbus, Ohio.

CONSTRUCTION INTERESTS CONFER

Review needs of the Day and Make Specific Requests of Fuel Administration.

As CHRONICLED in the November Clay-Worker a call was sent out by the National Federation of Construction Industries to about thirty organizations in the building material trade and kindred lines to send representatives for a conference in Washington, Nov. 24. At that time there was a strike on among the coal miners and the main purpose of the call was to bestir the government authorities to such action as would promise relief from the calamity which was rapidly developing because of the scarcity of coal.

At this conference a resolution introduced by Theo. A. Randall, secretary of the National Brick Manufacturers' Association, touching on the situation and the remedy, was adopted. This resolution was as follows:

> WHEREAS, Representatives of the Structural Material Industries and other construction interests of the nation, assembled in conference by the National Federation of Construction Industries, learn with deep concern that the present supply of coal is utterly inadequate for the needs of domestic and industrial purposes, and
>
> WHEREAS, a calamity more appalling to the people of the nation than even the recent world-war provoked is impending, therefore be it
>
> RESOLVED, That it is the sense of the Conference that the Power of the Government be at once and without delay invoked to compel the immediate resumption of coal mining, and that all questions of factional interest be waived pending the resumption

of the production of fuel necessary for life and welfare of all the people.

Unanimously adopted and respectfully submitted to the President of the United States and the Executives of the Government dealing with the Fuel Question.

This Resolution is sent to the President of the United States, the Fuel Administrator, the Attorney-General and the Secretary of Labor.

Now, while the strike has ended and the situation has changed somewhat, the interruption to coal production has resulted in such a shortage in the supply compared to the urgent current needs that the resolution may continue to be good in its effect in stimulating such action on the part of the railroad administration as will insure efforts to supply the needs of the brick industry for fuel.

The great need of the day in the brick and hollow building tile industry is for production, and more production, to the end that there may be building material for the new year. Congestion on the railroads may hamper coal production and distribution, and if this happens the building material industries should be on the preferred list, and should keep persistently after the authorities so that some proper headway may be made in providing material for the housing needs of the country.

The construction industry comprises about one-third of the business men of the country, with two hundred national associations and hundreds of local associations, employing more men than any other industry, furnishing more than one-quarter of the railroad tonnage, and producing three billions of dollars annually of capital wealth.

In meeting the Fuel Administration representatives on November 24, 1919, the delegation presented to the fuel authorities a statement that the conference realized the present seriousness of the coal situation, and, if the supply were not to increase, that coal could only be used for the first five priorities as approved by the United States Fuel Administrator October 31, 1919, namely (1) railroads, (2) army and navy, together with other departments of the Federal Government, (3) state and county departments and institutions, (4) public utilities, (5) retail dealers (domestic consumption); in other words, that there would be just sufficient coal to preserve the life of the nation. Under such conditions as these the construction industry would of course ask for no coal for manufacturing purposes, but simply for the conservation of its capital wealth by keeping pumps operating in mines to prevent flooding and by keeping fire protection equipment in buildings in an operating condition.

(In this connection the conference greatly appreciated the assurance given by the fuel authorities that emergency needs, as outlined in the preceding paragraph, would be cared for, and information recently received from construction interests over the country shows that they are getting coal for the purpose of conservation of property.)

It was, however, felt by the conference that there would be a considerable period after coal begins to be produced in quantities sufficient to care for more than the first five priorities before production could possibly equal the demand. During this period of resumption of normal business activity it will be necessary to create priorities for the supply of coal.

The construction industry during the war was considered relatively unessential, and if the old war priority schedule were to remain in force a great hardship would be worked upon the construction industry, which now, instead of being unessential, is by far the most essential in the United States excepting food.

The housing situation throughout the entire country is critical. Building programs are from one to three years behind present day requirements, and this is a most potent cause for the prevailing discontent and radicalism throughout the United States. The construction industry is the foundation industry of the whole social fabric; because of its magnitude and wide geographical spread its condition is reflected in all phases of national life.

In the construction industry there is such an inter-dependence of its several branches that construction cannot go on if the supply of coal to one essential division is cut off.

In view of these considerations, therefore, the conference presented to the Fuel Administration three specific requests, as follows:

1. That every effort be made to have construction materials given their proper important place in the priority schedule which will be used during the period of inadequate coal supply.

2. That a candid statement be issued to all of the manufacturers of the United States as to the real seriousness of the fuel situation so that their plans might be made accordingly and great loss, through unforeseen complete cutting off of the coal supply, thereby prevented.

3. That the conference be informed as to the ways in which the construction industry might be of most help to the government in handling the present coal situation.

It was thereupon suggested by the Fuel Administration that the matter of working out co-operative plans between the construction industry and the Fuel Administration be developed in further detail. A standing committee, known as the Federation Coal Committee, was therefore appointed to represent the construction interests in their relation to the fuel situation.

The Federation Coal Committee met in further conference with the Fuel Administration on December 1, 1919, at which time the committee was requested to prepare a formal statement, outlining the importance of supplying coal to the construction industry and submitting a list of kinds of construction and materials involved that are most essential.

The preparation of this statement was considered so important that the Federation Coal Committee met with the board of directors of the National Federation of Construction Industries and other prominent representatives of construction interests on December 3 and 4, 1919, in Philadelphia, in order to bring to bear upon this document the points of view of the several essential and inter-dependent divisions in the field of construction.

The claim of the construction interests for re-classification on the priority schedule is based upon the immediate vital public need for homes and apartments, humanitarian and other essential buildings.

Among the essentials for the above building projects are the following elements which appear alphabetically, and in the listing of which no attempt has been made to designate relative importance: Building clay products; cement and concrete aggregates; stone, quarrying and cutting; erecting power; glass, lime, gypsum products and magnesite; lumber and mill work (except for mill work the lumber industry probably will require very limited coal supply because of the use of wood waste products); mechanical equipment of buildings, such as plumbing, heating, etc.; preservatives of materials; roofing materials; steel for building purposes, and other essential minor requirements.

It is therefore recommended, that the Central Coal Committee approve a policy whereby regional directors of the Fuel Administration are given authority to allocate coal, immediately after the first five priorities referred to above have been cared for, to the Construction Industry for carrying out the above listed projects, which are vital to the public good.

FEDERATION COAL COMMITTEE.

JOHN L. CLARKSON, Chairman.
JULLIEN M. WINNEMORE.
JUDGE L. C. BOYLE.
HENRY M. CAMP.
EDWARD J. HARDING.
NORMAN G. HOUGH.
JOHN H. MILLER.
J. A. SMITH, JR.
H. E. STRINGER.
L. PERRY WEST.
N. C. WILKINSON.
ARCH M. JONES.

HOUSE BUILDING LAGS WHILE THE POPULATION GROWS.

Births Gain After the War—Only 20,000 Dwellings Were Erected in 1918.

WHEN WILL the supply of houses catch up with the increase in population?

Nobody seems to know.

It is known that from the increase in population alone 5,000,000 are jammed into houses where they should not be.

It is further known that not more than 20,000 houses were built in 1918, when the normal building program to keep up with the establishment of new families would call for 409,534.

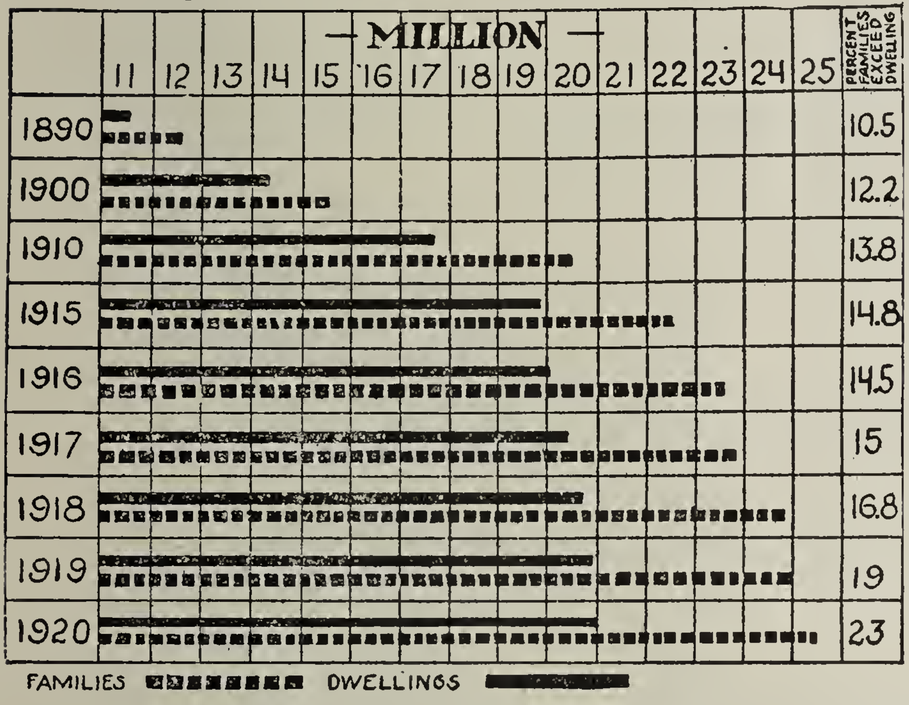
This estimate is based on figures obtained from the United States Housing Corporation.

More Births After War.

After the armistice was signed building resumed with a vim, but two months ago it slackened again.

The theory was advanced at the Bureau of Census that 20 to 30 years hence fewer homes might be established, thus enabling the country to catch up with housing, but it was soon shattered.

Why You Can't Find a House



This diagram shows how the number of houses has fallen behind the increase in number of families. The Bureau of Census counts apartment houses, duplex houses, hotels, boats, tents as dwellings. The normal excess of families over dwellings is around 10 per cent. Next year, it is estimated, this excess will be 23 per cent. The column at extreme right shows percentage of excess of families over dwellings.

"Indeed not," said Chief Statistician Hunt, who makes the figures on population. "More babies are born during and after war than in normal times."

"In 20 or 30 years from now we will need more than the normal supply of homes."

Table Shows Excess.

The following table shows how, for the last three decades, the number of families in the country has exceeded the number of dwellings:

	Families	Dwellings
1890	12,690,152	11,483,318
1900	16,187,715	14,430,145
1910	20,255,555	17,805,845
1915	22,786,499	19,853,517
1916	23,292,887	20,263,051
1917	23,799,275	20,672,051
1918	24,305,663	20,808,562
1919	24,872,051	20,829,039
1920	25,319,443	20,900,000

—Cleveland Press.

1920 TO BE BIG YEAR, SAYS DISTRICT OF COLUMBIA BRICK MANUFACTURERS

THERE is a distinct note of optimism throughout brick stabilization of labor conditions and the big increase in manufacturing circles of the national capital. With the building operations throughout the section there is every reason to anticipate a busy 1920. In fact, several of the manufacturers are predicting one of the busiest years in the history of the industry, some of them being already sold up for three and four months ahead.

Fiske & Co., Inc., well known dealers in face brick, who have recently handled many large government contracts, have removed from offices in the Union Savings Bank Building on Fourteenth Street to more commodious quarters at 1426 New York Avenue, a few doors from the United States Treasury building. The concern reports a rapidly increasing trade with the resumption of building operations in and around the national capital.

The United States Patent Office authorities have decided the hard-contested litigation of the Dunn-Wire-Cut Lug Brick Co. vs. Toronto Fire Clay Co. The suit was originally brought by the Dunn Wire-Cut Lug Brick Co. for alleged infringement of its patent for producing wire cut paving brick having wire-cut ribs on the sides. The case came up from the United States Circuit Court of Appeals of Ohio. It is held in the decision that the Dunn patent is valid and has been infringed.

The National Brick Co., a new and largely capitalized concern, has entered the brick-making trade of Washington. The company has established large kilns, yards and warehouses at Terra Cotta, one of the northern suburbs of the national capital, and is in full operation, its output being sold for several months ahead. James E. Granbery, formerly southern manager for the well known New York heating and plumbing contractors, W. G. Cornell Co., is at the head of the new enterprise. J. G. Benton, widely known in brick manufacturing circles here, is the general manager. The company has established offices in the Bond building, Fourteenth St. and New York Avenue.

The Department of Commerce has had prepared by its representative in Panama City, Panama, a list of the importers there in brick and clay products. In this fast growing city there is said to be developing a good market for American brick and tile, and our manufacturers in these lines who are interested in this trade will be furnished the list of importers by requesting same of the Bureau of Foreign and Domestic Commerce, mentioning "File No. 9978."

The production of common brick (until 1918 the most valuable product of the clayworking industry) showed in the past year decrease in both quantity and value, according to a statement of the United States Geological Survey. The quantity produced in 1918 was 3,450,612,000, which, when compared with the quantity produced in 1917 (5,864,900,000) shows a decrease of 2, 414,288,000, or 41 per cent. The value of common brick marketed in 1918 was $37,280,000, which, when compared with the value in 1917 ($47,936,344) shows a decrease of nearly eleven millions of dollars, or 22 per cent. The common brick production in 1918, says the Geological Survey, was the smallest ever recorded, and the value the smallest since 1898. The average price per thousand in 1918 increased $2.61 over that for 1917. $10.78 per thousand was the highest average price reached in recent years in this country for common brick. This price is said by the Geological Survey to be nearly double what it was in 1898.

"The next five years' business in the brick producing industry will, in my opinion, be the biggest in its history," said J. G. Benton, general manager of the National Brick Co., here, to "The Clay-Worker" representative. "We are at last going to make some money, and big money. Now that labor is beginning to get it into its head that it is not 'the whole thing,' and that strikes and unreasonable demands will not get them anywhere, we can look forward to better and more profitable conditions all around. With building operations fast increasing and general unrest subsiding, and with the crying demand all over the country for houses, prosperity is sure to come to the brick producers on a large scale."

ALTHOMAR.

Burning Clay Wares

by

Ellis Lovejoy

Written for The Clay-Worker.

THE CLAY-WORKER.

PART·XLIV.

Car Tunnel Kiln.

THE CAR TUNNEL KILN idea is more than 150 years old, but the impetus to the development of the kiln came from the Bock kiln presented to foreign clay workers about forty-five years ago. There are several advantages in a car tunnel kiln which have kept the idea alive in spite of the numerous early failures. These may be enumerated as follows:

(1) The economizer principle with its marked fuel economy.

(2) Centralization of the fuel.

(3) A fixed hot zone reducing the kiln absorption loss.

(4) Very narrow tunnels which are easily maintained and in consequence the kiln upkeep is relatively slight.

(5) Only the limited combustion zone requires high refractory construction, thus lessening the initial cost.

(6) Eliminating two handlings of the ware; namely, the setting and the drawing.

There are some off-sets to these advantages:

(1) The fuel economy is less than in a large tunnel or compartment economizer kiln. It is a question of the relation of the mass of ware to the kiln mass, in which the large kilns have the advantage.

(2) The initial cost of the car equipment will more or less even up the difference in kiln cost, and its upkeep will in some measure counter-balance the greater maintenance of the other types of kilns.

(3) The car tunnel kiln has not yet been adapted to a wide application. The failure of the Bock kiln, and two or more early attempts in this country, was due to the water-smoking and oxidation, and it is not yet proven that this difficulty is sufficiently overcome to cover a wide range of clay materials.

One kiln has introduced the possibilities of an advanced heating flue, but it has not yet been tried out. We are of the opinion that this feature of the kiln must come if we are to adapt the kilns to a number of common wares. One can readily see that if a tender clay requires one to several days to watersmoke and only a few hours to burn, or relatively long periods for oxidation and correspondingly short periods for burning, we must either hold the fire on the burned ware an unduly period or build the kiln a prohibitive length.

Dressler uses two tunnels—one the kiln and one for water-smoking and heating up—in fact the complete plan has in each unit a third tunnel for drying, and the earlier Bock kiln also had two tunnels. American practice will demand that the several operations, perhaps exclusive of drying, be accomplished in a single tunnel.

There are upwards of fifty car tunnel kilns now in operation in this country, and more projected, and the majority of them are burning pottery wares. In several instances biscuit ware is burned in the top saggers and glost ware in the bottom saggers in order to adapt the ware to the differences in kiln temperature. Here is a point that becomes very important in the manufacture of certain common wares such as paving blocks, face bricks where color is important, and products from clays having very short burning ranges.

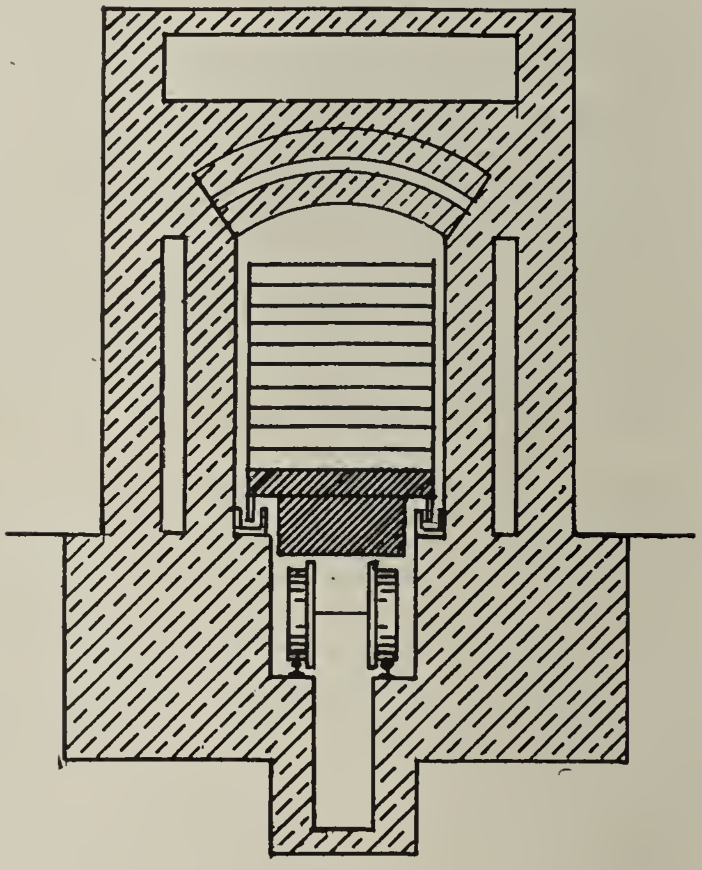


Figure 179.

Products Successfully Burned.

There are several car tunnel kilns operating successfully on fire brick products, but this product does not involve the difficulties in drying and oxidizing that we find in common clays, nor does it require the uniformity of temperature that other products require. There are two kilns, at this writing, operating on bricks made from shale which may or may not be difficult material to water-smoke and oxidize, but in this product we have the common clay problems and the success of the operation will be a matter of deep interest to clay workers. Car tunnel kilns for the manufacture of paving blocks are under consideration, and may be a fact by the time this is published.

When the car tunnel kiln is adapted and its operation adjusted to a ware, there is undoubtedly a balance in its favor over the other types of kilns.

Early Car Tunnel Kilns.

The Bock car tunnel kiln is shown in Fig. 177, longitudinal section, Fig. 178, plan, and Fig. 179, cross section. (Note: These drawings, and also all the car tunnel kiln drawings are not to scale, being shortened without proportionately reducing the width and height in order to fully illustrate the principles. Car tunnel kilns vary in length from 200 feet to 350 feet. The widths, exclusive of any side wall flues or spaces range from four feet to eight feet and twelve feet is claimed to be practical. The heights above the car decks to the under side of the crowns are around five feet. It may also be noted that in the sketches no attempt is made to show the details of construction, and they are merely intended to show the principles of the several kilns.)

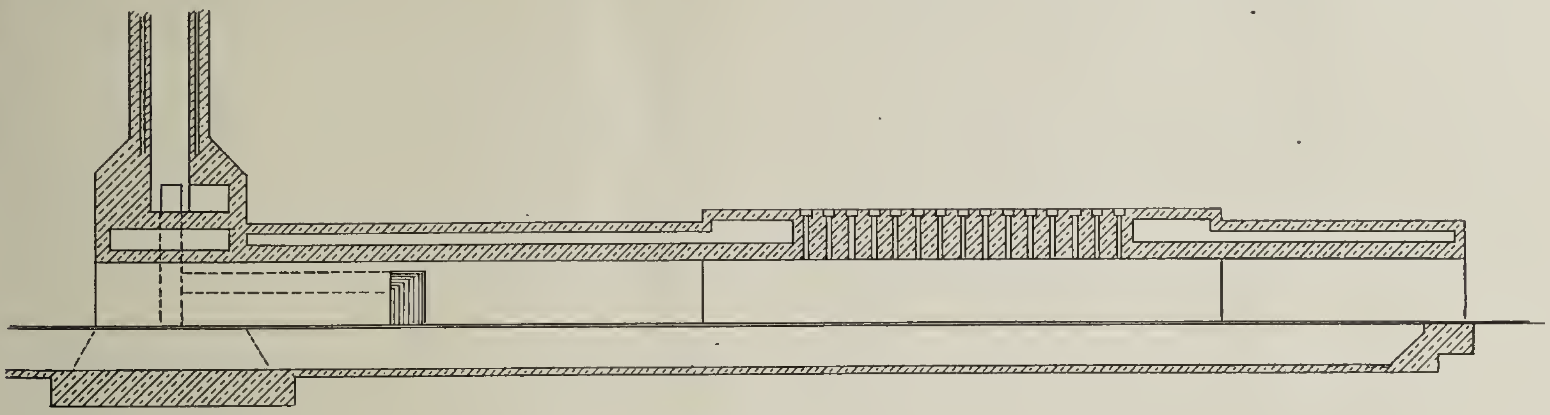


Figure 177.

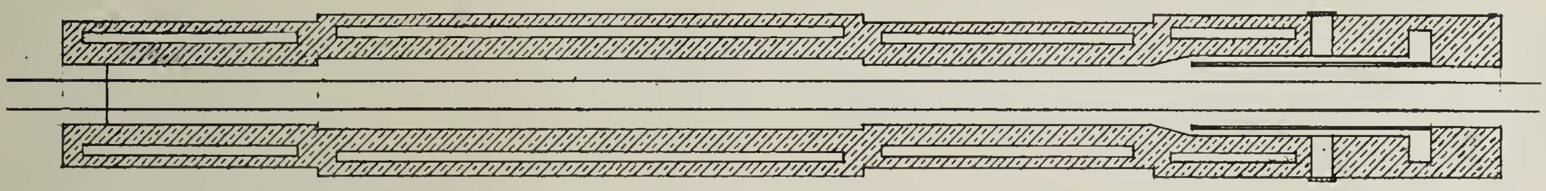


Figure 178.

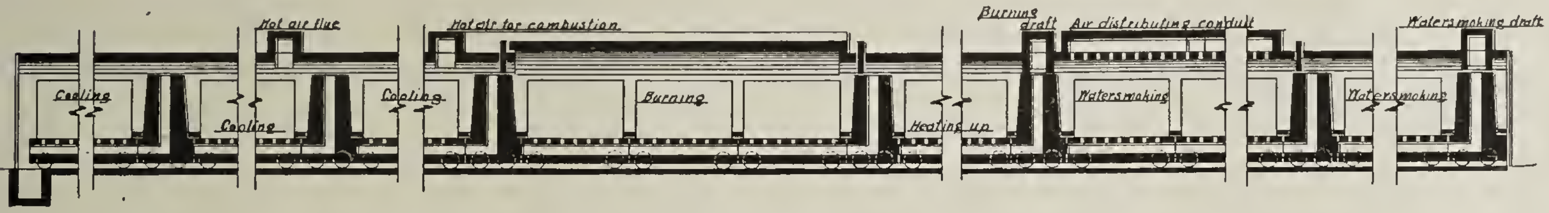


Figure 180.

A detailed description of the Bock kiln is hardly necessary. Briefly, the cars are covered with a refractory floor upon which the ware is placed. An apron attached to the car floor or to the top of the car frame and a sand filled trough in the kiln wall cut off the metal car and the under tunnel from the firing tunnel. This is the ordinary sand seal found in several kilns.

The air supply enters under the cars at the stack end, flows the length of the kiln, thus keeping the cars cool, and enters the firing tunnel at the opposite end, thence traveling successively through the cooling, combustion, and heating-up zones. A feature of the kiln which has been applied to dryers and in modified form to other kilns, is the metal diaphragm, forming the inner side walls at the receiving (stack) end. The purpose of this is to prevent condensation on the cold wet ware, and at the same time recover the heat from the waste gases as well as the latent heat from the condensing water vapor. The diaphragm flues open into the firing tunnel at the point where the waste gases are assumed to become fully saturated, and here the gases are removed from contact with the ware but the heat from them passes through the metal plate to the ware by conduction and radiation.

The kiln was direct coal fired through the feed holes in the crown of the firing zone, similar to a top-coal fired tunnel (ring) kiln. The Siemens-Hesse car tunnel kiln, which appeared three or four years after the Bock kiln, was virtually a Bock kiln adapted to producer gas.

The gas was introduced into the combustion zone through the inner side walls virtually in the same manner as in the present day kilns.

It is interesting to trace the development of the car tunnel kiln. The Pechine kiln had the fire at one end and one can see in it an effort to develop a tunnel kiln from an end fired periodic kiln such as were used in the early days.

Borrie moved the fires to the center of the tunnel. Meanwhile, or later, the Hoffman ring kiln is developed, and Bock merely converts it into a car tunnel kiln, in a measure combining the Borrie and Hoffman kilns.

(Note: The illustrations do not show the full number of compartments. A normal kiln will have four compartments cooling, one burning, three heating up, and two water-smoking, corresponding to a ten-section compartment economizer kiln.)

(To be Continued.)

Mrs. R. was an extremely careful mother, and had repeatedly cautioned her six-year-old daughter against handling any object that might contain germs. One day the little girl came in and said: "Mother, I am never going to play with my kitty any more, because she has germs on her." "Oh, no," replied her mother, "there are no germs on your kitten." "Yes, there are," insisted the child. "I saw one hop."—Harper's Monthly.

FACE BRICK MANUFACTURERS AND DEALERS MEET

Eighth Annual Conventions of American Face Brick and Dealer's Associations, Held French Lick Springs Ind. Dec. 2, 3 and 4

Pluto

THE HOME OF PLUTO was the scene of a hilarious celebration by the face brick manufacturers and dealers the first week in December on the occasion of the eighth annual meeting of the American Face Brick Association. The convention was remarkable for the enthusiasm of those in attendance and practically the entire membership was represented. In the proceedings a number of high spots were touched, and subsequent meetings will have to go some to equal it. An intense interest was manifested in various ways due to the rejuvenation of the industry during the past year. A large increase in membership was reported and was the cause for much felicitation, particularly by the older members who saw in that the fruition of cherished hopes for the uplift of the face brick business.

A brief, but excellent program was presented directed chiefly to the marketing of face brick. Naturally, the publicity campaign now fully under way was the paramount feature. Under the direction of Dr. Mars, a master publicist, the work is progressing rapidly and much benefit has already been realized.

The report of Secretary-Treasurer Hollowell showed that the finances of the Association are in a very healthy condition, indicated by a balance in bank of $50,000 with an increased revenue assured in the immediate future. This was balm for the hard working officials who have served strenuously during the past year or two. That their efforts were fully appreciated was manifested by a rising vote of thanks to the outgoing president, Frank W. Butterworth, and a pledge of 100 per cent. support to his successor, John H. Black of Buffalo.

A number of instructive papers were presented touching on Transportation Problems, Cost Accounting, and other timely themes. The hit of the convention was scored by Prof. Woodbridge N. Ferris, Big Rapids, Mich., who spoke with great fervor on Americanization as the salvation of the industries of the Nation.

At the opening session, President Butterworth delivered the usual annual address which we give in full.

ADDRESS BY MR. FRANK W. BUTTERWORTH, PRESIDENT OF THE AMERICAN FACE ASSOCIATION, AT ITS EIGHTH ANNUAL MEETING, FRENCH LICK, INDIANA, DECEMBER 2, 1919.

Gentlemen of the Convention—

This being a meeting of business men, for business purposes, it is not my intention to indulge in any oratory.

Various heads of departments will later explain in detail the activities of your Association. In passing, I merely wish to say that the following have been achieved since the Chicago meeting, in February:

The membership has been vastly increased.

Financial arrangements have been completed, assuring the Association an income, for at least three years, sufficient to carry on all of its activities.

Competent legal advisors have been selected.

A powerful advertising campaign has been organized as to personnel, planned in detail, and is about ready for launching.

Arrangements have been made so that all Division work is recorded by the Association Secretary.

Preliminaries have been arranged for a comprehensive system of cost exchanges, which will be of invaluable service to the industry and the public.

Adequate machinery has been set up to secure a revision of existing freight rates—to resist all future advances and to attempt the adjustment of discriminations.

A spirit of co-operation between dealers and manufacturers is being fostered, which should tend toward the uplift of the industry.

Other activities, of lesser importance to both the public and our industry, have been started.

Late in 1916 a few of the older heads in the business foresaw a period of violent change directly ahead—the European War, with its excessive demand for materials of all sorts, was beginning to affect all American industries—labor in many sections was expensive and difficult to secure—fuel was rapidly becoming so—the entrance of our own country into this, the most disastrous of all wars, was becoming hourly more certain. What was in store for our industry was the momentous question.

In response to inquiries abroad, our Secretary secured the same reply from all countries with which he could communicate—war absolutely destroyed the face brick industry.

It was at this time, with its uncertainties and its impenetrable curtain of doubt, that the exchange of information as to market conditions was inaugurated, in order that all plants, no matter how located, or what their connections were, might, as intelligently as possible, so conduct their affairs as to survive this period with the minimum of loss, consistent with the maximum of service to their country.

The early months of 1917 became a period of constantly increasing costs, accompanied by constantly decreasing demand—can any industry face a more difficult problem? Plant after plant gave up the struggle and closed for the duration of the war—those who continued operating, piled up huge stocks without any prospect of sale.

During the active hostilities this industry became practically extinct, rendered so by Government restrictions and lack of demand.

The years of 1917 and 1918 will long be remembered in the face brick industry, for they left many gray hairs as mementos—the industry lost heavily and absolute bankruptcy was only avoided by most careful management.

Following the signing of the armistice came a period of uncertainty more trying than that of actual war—Governmental restrictions were removed, but demand had not asserted itself. Those who resumed manufacture early in 1919 were gambling with big stakes, "Were costs to increase or decrease?" "Were we piling out stock at the peak cost and could that stock be sold at any price?" were some of the questions they were asking. Those who waited for the market to guide them, were carrying large overhead expenses without production to absorb them. All units of the industry through idleness—always much heavier than when operating.

It was not until June or July, 1919, that anyone could safely say the market was steady and that demand justified maximum production, which, we are proud to say, was attained as an industry in August.

The past three months have brought to this business the greatest demand in its history—all plants are sold far ahead—dealers are trying to increase their supply for next year—production was being crowded to the utmost—scarcely a day goes by some customer does not offer a premium over his contract price for early delivery—then the miners struck and shut off the fuel supply. What in H——l is going to happen next?

During the last three years this industry has played the entire gamut—rapidly increasing costs accompanied by constantly decreasing demand—Governmental restrictions followed by practical extinction—months of uncertainty as to the resumption of demand —then a marvelous quickening to maximum production, with demand greatly exceeding the supply. Certainly the least of our worries has been the profit tax.

Your Association has played a large part during all these periods—it was the nucleus around which was built that organization which functioned under the direction of the War Industries Board for the regulation of the entire brick industry.

Your War Service Committee was repeatedly directed by Federal officials to take any and every means to safeguard the remnants, in order that the skeleton of an industrial organization could be maintained.

The exchange of statistics and market information of all kinds had much to do with the preservation of this business, and the quickening of a dead industry.

Yet, through all of these vicissitudes, this Association has preserved inviolate it's legal integrity—it has stood like a rock against all acts which would influence prices—curtail production or restrict the business area of a plant—its meetings have always been public and open to anyone interested.

Each and every member has cause to be grateful and proud of its acts—it deserves, and should receive, the thanks and praise of every community in which one of its units operate, and of the building public generally.

The industry for the manufacture and distribution of Facing Brick has a distinct service to perform and for that service each unit comprising it should receive adequate recompense—a portion of that service is to educate the public along the line of more permanent construction and that your Association is finally in position to perform for you.

In starting it's publicity campaign the American Face Brick Association will make it's bow to the public, tastefully dressed in evening clothes—it requests you to arrange your affairs—to so conduct the unit for which you are responsible—that the industry may be constantly elevated and that this Association can not be criticized for any of the acts of its members as to unreasonable price—as to quality—or as to service during delivery.

If any member of this Association can not perform the service which his community has a right to expect, he must cheerfully consent to a revision of his methods, or expect nothing but decay.

THE AMERICAN FACE BRICK ASSOCIATION OFFICERS

JOHN H. BLACK, President, Jewettville Clay Products Co., 123 W. Chippewa St., Buffalo, New York.
S. C. MARTIN, 1st Vice-Pres., Kittanning Brick & Fire Clay Co., Empire Building, Pittsburgh, Pa.
B. W. BALLOU, 2nd Vice-Pres., Kansas Buff Brick & Mfg. Co., 220 Reliance Building, Kansas City, Mo.
R. D. T. HOLLOWELL, Secretary-Treasurer, 110 South Dearborn St., Chicago, Ill.

DIRECTORS

GEO. A. BASS, Hydraulic-Press Brick Co., Central National Bank Bldg., St. Louis, Mo.
H. R. BEEGLE, Beaver Clay Mfg. Co., New Galilee, Pa.
P. B. BELDEN, Belden Brick Co., Canton, Ohio.
W. H. BRECHT, Boone Brick, Tile & Paving Co., Highland Park Station, Des Moines, Iowa.
F. W. BUTTERWORTH, Western Brick Co., Danville, Ill.
T. P. CUTHBERT, Fallston Fire Clay Co., Pittsburgh, Pa.
W. H. HOAGLAND, Claycraft Mining & Brick Co., Columbus, O.
B. MIFFLIN HOOD, B. Mifflin Hood Brick Co., Atlanta, Ga.
G. B. Luckett, Crawfordsville Shale Brick Co., Crawfordsville, Ind.
D. H. MILLER, Milton Brick Co., New York, N. Y.
J. W. MOULDING, Thomas Moulding Brick Co., Chicago, Ill.
C. C. STRATTON, Alumina Shale Brick Co., Bradford, Pa.

THE JOINT SESSION.

THE JOINT SESSION of face brick manufacturers and face brick dealers at French Lick Springs was held in the forenoon of December 3, with an attendance so large that they had to invade the dining room to find a place big enough for the crowd, which must have numbered close to 250.

There were two subject features at this session. The first one being co-operative competition, a subject ably handled by Elmer H. Adams, of Adams, Childs, Bobbs & Westcott, of Chicago.

The meeting was presided over by President John M. Stoner of the dealers' association, who in opening the session extended the thanks of the dealers to the face brick manufacturers for the invitation to join them in a combined meeting, after which he introduced Mr. Adams, the first speaker of the day.

Mr. Adams reviewed the ups and downs of industrial life from the Civil War period to the present day, pointing out that from the close of the Civil War to 1873, was an era of great prosperity, which in turn was followed by the panic of '73. In efforts to recover from the panic there developed what was known as the trust era, the forming of combinations or trusts which in time brought reaction and anti-trust legislation.

Following this, the casting about for other ways and means than trusts to stabilize business led to the development of trade organizations, and these in turn have done more than anything else to eliminate suspicion between business men to wipe out the old order of cut-throat competition.

Since the panic days of '93, that with the silver hue, there has grown up a realization that competition as we have interpreted it in the past is ruinous and does eventually serve to restrain trade. So the efforts since that time have been centered toward developing legitimate ways and means for what is termed co-operative competition and the elimination of unnatural price cutting, fraudulent advertising, discrimination in quantity orders, etc.

Today he finds that trade organizations are an established fact, endorsed by the Federal Trade Commission, and have been proven worthy, the proving of their worth having taken place during the war period.

Therefore the question of the day becomes simply one of how to make trade organizations successful. On this point Mr. Adams outlined some of the activities that are worth while, including market statistics, statistics of stock on hand, and requirements of the trade, the solving or adjusting of labor problems, freight rates, the adoption of uniform accounting systems, the elimination of fraudulent advertising, of secret inside prices, in a word, successful organization work means converting the old cut-throat competition into a form of friendly rivalry which will stimulate effort and beget progress instead of breeding antagonism and begetting ruin.

The organizations of broader scope have as a part of their duty the stimulating of local effort which is the final secret of every day success through association, that of the people in each community getting together and becoming co-operative in their competition and upbuilding instead of destructive.

At the end of his address a rising vote of thanks was tendered Mr. Adams, who is attorney for the manufacturers.

Chairman Stoner then introduced G. C. Mars, director of advertising of the American Face Brick Association, as a bright and shining star to point the way to better business and brighter things in brick publicity.

Dr. Mars expressed thanks for the cosmic introduction, but insisted upon correcting the wording by the statement that Mars is a planet and not a star and doesn't twinkle and give off light of its own accord, since it merely reflects the light which comes from the sun.

Then, as a preliminary to his own report, he introduced

Louis Grilk, of Chicago, western representative of Geo. L. Dryer Co., Advertising Agents, to give an outline of the science and results of advertising in a broad sense, which would be followed by his report of the specific efforts being made by him for the Face Brick Manufacturers' Association. The result was a fine double-barreled talk on publicity by these two gentlemen of which only the high-light spots can be given here, but they are well worth while and should be thoughtfully considered.

High-Lights On Advertising.

There is a subjective effect from advertising as well as from prayer, that is the fact that people advertise a product extensively moves them to value it, to take more pride in it and look after its qualities better than if they were not advertising it.

American captains of industry have always been great producers, but rotten merchants.

Advertising makes merchandise come out in the open and tell the truth about itself. It educates the public and makes for honesty and better understanding.

Proper advertising and selling does not merely sell, but it wins eventually the good-will of the public.

It is often easier to sell a man when he is not in the market to buy than when he is in the market, because he is open minded and free from prejudice when he has not already made up his mind to buy.

People like to buy, but they don't like to be sold, and it is advertising that slips into the consciousness of the people and sells them when they think they are buying.

Clothes consciousness, that is the knowledge of the character in clothes and the following of styles in dress, is a direct result of wide advertising by prominent manufacturers of clothes.

Architects point that bathroom costs are out of all proportion to other costs in the home simply because we have become bathroom conscious through the wide pictorial exploitation of bathroom equipment, and have been sold on these things.

One needs to reach the general public as well as the prospective customer for the sake of future development and it is there that advertising in periodicals is effective.

The year 1920 promises to be the greatest advertising year on record in the amount expended and the high character of the advertising.

The number of nation-wide advertisers who are spending more than a million a year has increased considerably.

The significant feature of the day in the better results coming from advertising is the quick response of the public. Illustrative of this it is said that advertising has resulted in increasing the call for twin beds from 20 per cent. to 50 per cent. of the beds sold.

When you have something to say that interests the public the public will read it regardless of whether or not there is included striking illustrations to attract the eye.

The favorable time to advertise never comes. Either industry is over-sold and don't need the business, or is under-sold and can't afford it. Now is the only time to advertise.

Three years of brick advertising efforts should create a national face brick consciousness and result in permanent good.

Advertising creates a better and bigger demand and thus makes better and steadier business.

The big story in face of brick advertising is that feature of difference in cost between face brick and the wood wall, to relieve the public mind of the false impression that a brick house costs too much.

People want to know what a house will look like before they build, so plans and pictures are essential features to face brick advertising.

Local advertising must supplement national effort and have a local hook-up with it to co-ordinate the efforts for best results.

Neither advertising nor the service department with its follow-up literature can close sales. There must be salesmanship as a follow-up to advertising.

Not only your newspaper and trade papers and magazines are made possible to you by advertising, but information about everything you wear and everything you eat is brought to you through advertisements therein.

The American Face Brick Association expects to reach from 15 to 20 million people with its advertising and to send out 75,000 follow-up booklets.

Advertising cost in periodicals is practically double consequently larger appropriations are essential for the same amount of space.

The advertising and competitive architecural plan efforts of the face brick association have been approved by the American Institute of Architects, and a splendid order of co-operation is being developed between the face brick industry and the architects which is full of promise of active promotion of brick building in homes.

It is useless to enter a national advertising scheme without some follow-up in pamphlet form or circular. Therefore some splendid follow-up literature has been prepared which includes the study of comparative cost, pictures, plans and other interesting information.

Comparative costs, taking the country as a whole, are interesting but not as convincing as comparative costs under local conditions. Therefore while the advertising department of the Face Brick Association has prepared data on average costs of six different types of walls as a starter, this should be followed up in each locality by local figures of comparison in keeping with local conditions.

The Dealers' Meeting.

THE KEY-NOTE slogan of that live wire division which is developing the merchandising and salesmanship end of the brick business, and is officially organized as the Face Brick Dealers' Association of America, was and is "Get Acquainted with the Other Fellow: Maybe You Will Like Him."

There was not as much preliminary blowing of trumpets to herald this gathering as preceded that of the Face Brick Manufacturers, but the attendance was there in a surprisingly large quantity and they came in a spirit that speaks well for the future of this organization. They packed the "ordinary" dining room which had been assigned to them as a meeting place to overflowing. First it looked like there were 50 or 60 present, pretty soon it was 75 or more, and before the first meeting was well under way the attendance had easily passed the 100 mark.

The first session was called to order by President John M. Stoner at 2:45 P. M., December 2nd. After the roll call Mr. Stoner introduced the new secretary, Morris M. Montgomery, who had been brought into action in the organization the first of September, who had been very busily reviving interest and building up the organization and its work since that time.

President Stoner made a short, stirring talk reviewing the progress of association effort among the dealers, in which he impressed not only the fact that the dealer is an economic necessity, but there is a future before the dealers of vast possibilities if they will only get together. keep together and move in harmony to take advantage of and develop these opportunities.

Following the report of the secretary and treasurer's report and audit, submitted by Treasurer D. W. Clark, of Buffalo, the president appointed committees as follows:

Committee on Revision of Constitution and By-Laws: Carl C. Waters, Wm. Black, J. H. Donahue.

Nominating Committee: Don Weaver, T. B. Freeman, R. B. Howard.

Following the reading of the minutes an hour was devoted to general discussion which included some question of the cost of doing business, and of co-operative competition and how to develop a spirit of harmony among dealers, and between dealers and manufacturers, to the end that all may prosper as they should.

Incidentally there was injected into the discussion a question of what constitutes a dealer as distinguished from a broker. This is a subject that has had attention heretofore and the answer is fairly clear and concrete as developed on this occasion. A dealer is a man who buys and sells, carrying the account and making the collections, supplemented at times by warehouses, yarding, etc., whereas a broker is a selling agent who sells for a stipulated commission or stipend, and the shipper bills direct to the customer and makes his own collections.

Reports from members during the discussion of local organization efforts brought out the fact that there are 100 per cent. local clubs in many important centers, and that the nearest thing to ideal results are obtained when local manufacturers and manufacturers' agents are included in the membership and activities of the local organizations.

Perhaps one of the most fruitful ideas developed and strengthened in this round of general discussion was that of making it a policy to sell to the contractors and builders rather than direct to the owners who are having buildings erected. The good-will of the contractor is an important factor in the merchandising of any building material and he is the logical man to carry on the business of buying. This does not mean excluding the owner from an opportunity to see and exercise his preference as to the kind of brick to be used. The idea is to co-operate with the contractor in laying before the user different offerings, and the best way to keep this co-operation alive and working right is to make the final selling transaction through the contractor rather than direct to the dealer.

The Dealers Association had three sessions proper and then a joint session with the manufacturers. The first session closed at noon Tuesday, December 2nd. The open or joint session was held at 10 A. M. December 3rd in conjunction with the manufacturers.

The Schoolmaster Session

The second session proper of the dealers was also made an open session, and an invitation was extended to all the manufacturers who could manage to do so to attend. This was held at 2 P. M. Wednesday the 3rd for the purpose of listening to the address of Ex-Governor Woodbridge N. Ferris of Michigan.

The address of Mr. Ferris was the most enjoyable event among all the happenings at French Lick during the three days of active effort. He is a schoolmaster of the old school who never grew old in spirit nor got behind the times in thought. Moreover he started out by knocking into a cocked hat the accepted dictum of the day that the spirit of community welfare and of co-operation is something that has only been born and developed during the past few years.

He told about conditions 40 or 50 years ago, when people cut and raked hay by hand and threshed wheat with a flail, while in the simple homes of the pioneers the women folks knit their own stockings, and also the socks and mittens for the men and made candles for their light. Then he described the log rollings, the apple parings, corn shuckings, and the dances which followed as ample proof of the fact that we had a spirit of co-operation and of effort at community welfare and development in those days as well as today. The point of his contention there was, that the spirit of the brotherhood of man is as old as man himself, and that men and women, real men and women, are made the same way today they were 40 or 50 years ago.

In pointing out these things and in leading up to and discussing conditions today and the problems confronting humanity Mr. Ferris had his audience alternately convulsed with laughter and uproariously applauding. It is not possible in a printed story to do justice to this stirring address made by Mr. Ferris, but there is set forth here in condensed form a few of the many striking points scored by him.

Men, real men, are made the same way today as they were 50 years ago.

Education is one of the great needs, and we should run our schools like a business, 6 days a week and 12 months a year, with night school for all who want to go.

Education is the great need of the world, and educational practices have in a way become one of the greatest farces in the world.

We are now at the most careless and thoughtless period in the history of our great country since the days when the original colonists set up civilization in the wilderness of America.

We should not sit back and let things adjust themselves; these things we call industrial unrest, and disorganization, but get busy and adjust them as they should be adjusted.

It is time to think seriously of the problems of capital and labor.

Higher wages may put a temporary stop to a strike, but wages do not bring industrial peace.

We must get capital and labor together as real fellow-men and not in a perfunctory way.

People work, not because they want to work, but because they want something so bad that they are willing to work to obtain it.

When you take all sentiment, beauty, poetry and laughing children out of life, what is left?

Justice is better than charity; people are tired of charity and what those receiving charity need is not money, but the opportunity to make money.

Accidents happen and people make mistakes. These things always will be, yet we can make progress toward justice if we persist in trying.

If we are to have permanent industrial peace we must have some better form of co-operation between capital and labor than has yet been devised.

Through the abuse of love, and the protection and indulgence of our boys and girls that they may not go through the same hardships as ourselves, we commit the great crime of making many of them into cooties on the body politic.

Brick has a future before it of indescribable possibilities, therefore handle your opportunities like men.

Organizations, whether for religious purposes or for business, become disorganization when they break up into denominationalism and local organization in a manner that tends to pull them apart from the main body. We must coordinate and concentrate all such localized effort toward the main goal.

The square deal is the one thing needful in Americanism.

Learning the English language is one of the essentials to true Americanism, and the man who does not learn it and become a real American citizen within a reasonable time should be sent back to that foreign country from which he came.

There is not so much difference between people as we sometimes think.

Let your undertakings in this world include the making of men, and put some joy into your work.

The final session of the Face Brick Dealers' Association of America was an executive session, for members only, held the forenoon of December 4, at which officers and directors were elected and work for the coming year was outlined and plans made for a bigger and better association, to the end that its members may become bigger and better business men.

Officers and Directors.

President, J. H. Donahue, St. Paul, Minn.
Vice-President, R. L. Findlay, New York City.
Secretary, Morris W. Montgomery, Tower Bldg., Chicago.

Directors.

W. N. Fry, Memphis.
R. N. LaBar, Scranton, Pa.
Jno. W. Stoner, Cincinnati.

Among the stars of the east came Arthur Reid, of Newark and Philadelphia, who was always a live wire, and Hon. Otto Wittpenn, ex-mayor of Jersey City, who made his first pilgrimage to the annual gathering at the home of Pluto.

PERSONAL PICK-UPS AT THE HOME OF PLUTO.

Charles Hermann, our friend of the youthful spirits, head of the U. S. Brick and Tile Co., has the reputation of being the best "yesser" in Tell City, Ind.

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The Southern group of face brick manufacturers was represented by 100 percent of the active membership, which was a good showing from the South country.

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When a man gets his name "nicked" it is a pretty good sign of personal popularity, and since the new secretary of the Face Brick Dealers' Association, Morris M. Montgomery, has already been elected "Monty" it is a pretty sure sign that he is making good and finding favor.

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Marse John Sibley, of Birmingham, will have to look to his laurels as the king of darkey story tellers from the South, because there is a man named Ryttenberg, from the gamecock town of Sumpter, S. C., who is showing up as a promising rival in the indoor sport of darkey dialect stories.

——o——

H. A. Brocas, President of the Buffalo Builders' Supply Co., Buffalo, N. Y., says that of late years Buffalo has become a strong market for hollow building tile. At the present time this stock is scarce, and the question of the day is, where and how to get enough for the building operations.

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Windsor, Ont., Canada, was represented at the dealers' convention with three delegates, A. J. Craig of G. E. White & Son; W. J. Thomas and E. T. Howe, of the Caldwell & Gravel Co. All report that so far they have been able to supply the needs of the trade, but for the new year it looks like the big question is one of material and men.

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The Fosters of the Kittanning Clay Products Co., Bradford, Pa., and Kittanning, have become interested in oil production and refining in Kentucky as well as in their home state. C. E. Foster, the elder, is president of the American Production and Refining Co., which has a pipe line and is preparing to erect a refinery at Bowling Green, Kentucky. D. E. Foster, the son, who is still looking after things at Bradford, is also interested in the oil enterprise, and was distributing literature at the French Lick meeting.

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B. W. Ballou, of Coffeyville, Kan., is the man who played an active part during the war period in introducing a new form of concrete, using a burned clay aggregate. He is still warmly interested in this product and its possibilities, and was called upon to answer many inquiries as how this clay aggregate is prepared and what it may be used for. It is made up by patent process, the shale being crushed into sizes from walnut and smaller, and burned in a short rotary kiln somewhat like cement, but not to a clinker nor even to vitrification. Part of the secret of the product is in limiting the temperature of the burning of the shale to exactly the right point. There seems to be interesting future possibilities for this product, but it will take time to determine just where and to what extent it may best be used.

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One of the best signs of the times of future progress in organized effort is found in the roster of the officers of the two brick organizations that met in co-operation at French Lick. Both F. W. Butterworth, president of the Manufacturers' Association, and Jno. M. Stoner, president of the Dealers' Association, rendered such valuable service that they were permitted to retire from office only under strong protest. Then each association proceeded to elect fine upstanding, progressive men for officers and directors. Look them over, and if you know the men you will be convinced of this, and also that there are busy progressive days ahead of the organizations for the face brick manufacturers and face brick dealers.

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J. W. Lazear, district manager of the Brown Instrument Co., Conway Building, Chicago, was on the job distributing pertinent literature showing how the brick men who have sized the situation up right are using Brown Pryometers and saving coal.

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John D. Key, president of the Key-James Brick Co., Chattanooga, Tenn., says they have had more than they could do right along, and it will keep them hustling to supply the needs much less accumulate any stock for next spring. They make both face brick and common.

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H. B. Schaal, of the Hocking Valley Fire Clay Co., Nelsonville, Ohio, is figuring on a gas producer burning system. To get more light on the subject he went from French Lick with Hermann to visit the plant of the U. S. Brick and Tile Co., at Tell City, Ind., where the producer gas is being used.

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The prize souvenir at the French Lick gathering was a pocket screwdriver distributed by J. M. Stoner, of the Cincinnati Clay Products Co., 534 Main street, Cincinnati, Ohio. This screwdriver was about as popular a souvenir as Stoner was as president of the Dealers Association.

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The R. B. Tyler Co., Louisville, was well represented, there being present during the sessions R. B. Tyler himself, W. B. Whaley and W. L. Cremers. The R. B. Tyler Co. has had an active year in brick and builders' supplies, and is looking forward to bigger and better things in 1920.

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John G. Johanningman, of the Pursell Co., Cincinnati, Ohio, says that Cincinnati, like other cities, is far behind in building operations and running short of building material, including face brick. The great problem here, as elsewhere, is where to find and how to get enough material to meet the coming needs.

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V. H. Kriegshaber, of Atlanta, Ga., is ex-president of the chamber of commerce of Atlanta, and is a live wire and ready to take chances on any new thing unless that thing happens to be oil stock. When it comes to oil stock he says there is nothing doing, because he has already had his fingers burned off to the hands playing with that kind of fire, and he is "off" of it for life.

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Joseph Hock, president of the Wisconsin Lime and Cement Co., Chamber of Commerce, Chicago, does not observe the 8-hour limit idea in his own labors. They have a group of yards and he makes it his business to be at one of the yards before 7 a. m.; in other words, his morning rising hour is about 6 a. m., which is going some for Chicago, where one does not expect to find a man in his office before 9 a. m. Mr. Hock believes in personal supervision and puts his belief into practice.

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One of the war heroes who went across and lost a leg on the other side, but is smiling and is in business harness again, is Clifford S. Taylor, of the Thomas Bros. and Co., Empire Bldg., Detroit, Mich., dealers in face brick. Mr. Taylor, being from England, went back and got "his" before our boys got into the game. Now, however, he has put that behind and is concerned with where and how to get face brick to supply the needs in Detroit.

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The main present worry with Oliver Albert Harker, Jr., of the Dixie Brick and Tile Co., Puryear, Tenn., is the shortage in coal. He is in need of more brick than they can produce, and he is apprehensive that coal production has been so curtailed already that it will not be able to catch up and supply the needs until winter is over. Given plenty of coal they will sure have busy times down their way. Efforts of the writer to cheer him up with the assurance that the coal supply will be back to normal in 30 days brought an expressed willingness on his part to buy a new hat for the writer if he could be assured of the truth of the prophecy.

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J. C. Johnson, sales manager of the Standard Sand & Cement Co., Duluth, Minn., says the main question with them is to get the stuff.

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F. W. Butterworth, of the Western Brick Co., Danville, Ill., says that it sure looks to them like big times ahead in the brick business, and the only question is that of how much stuff they can produce.

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J. T. Howington, of the Coral Ridge Clay Products Co., Louisville, Ky., is an enthusiastic association man and a firm believer in getting together with the other fellow for mutual benefit.

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John Andres, of the Standard Brick Manufacturing Co., Evansville, Ind., when asked how many brick they expect to sell during 1920, says that they expect to sell all they can make, and the question is one of how many they can produce.

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L. J. Bolster, of W. G. Bush & Co., Nashville, Tenn., says that the coal shortage has shut down their face brick production for the time being, but they are still turning out some common, and are anxious to see the coal situation relieved, so that they can get busy all around.

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O. G. Knoske, of the Derr-Shaffer Sales Co., Akron, Ohio, is one of those good things that come in small packages. He was the smallest delegate present among the dealers, and persistently paired off with the bulkiest man he could find. He is a live man from a live town, where a fellow has to hustle or get left. Incidentally, he says that both brick and hollow tile are making active progress in home building in Akron.

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Irving A. Ryttenberg, of The Sumpter Brick Works, Sumpter, S. C., makes face brick from an unusual type of clay which requires a high burning temperature and produces a light weight brick of many and variegated colors. He uses the Underwood producer gas system and makes a record of about 98 percent of hard burned stock. Also, he has demonstrated to his satisfaction that real success with the producer gas system depends on having a man to operate it who really understands how to do it.

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Thomas E. Willson, of the Pittsburg Clay Products Co., third vice-president of the N. B. M. A., had about ten of his family and kinfolks in war activities, and since they are all back safe and sound he feels like the worry of readjustment and reconstruction is a small matter compared to the joy of their return.

TWO HARRY'S TAKE A FLYER.

It may be that if the brick men keep prospering and the aeroplane keeps its rapid progress that soon the usual thing in hospitality when one brick man visits another will be, "take a little fly with me in the plane," instead of the familiar, "take a run with me in my flivver."

Only the other day Harry Cramer, of the Lexington (Ky.) Brick Co., went over for a friendly visit to Harry Miles, of the Spahr Brick Co., at Maysville. Miles was just completing preparations to take a flight in one of two aeroplanes which were parked adjoining his brick yard, and had been giving flight demonstrations.

He offered to forego his flight and to stay and visit with Cramer, but Cramer is always ready to try out and test the things offered. The upshot of it was, that each took a plane with a pilot and made a flying trip from Maysville to Lexington, a distance of about 60 miles.

Harry Cramer took his straight and was landed with grace and dignity, but the pilot carrying Harry Miles, after they had reached the landing ground, shot upward to about 4,000 feet and then gave him all the trimmings, including spins and loops.

POSTER SIGNS.

Two poster signs conspicuous at the convention were of the Cincinnati Brick Club and of the Northwestern Face Brick Association, of Minneapolis and St. Paul. The roster of the Northwest association is as follows: Belt Line Brick Co., Colburn Brick Co., Corning-Donohue Brick Co., Hydraulic-Press Brick Co., Johnson, Jackson & Corning Co., Twin City Brick Co. C. A. Gunn, Secretary.

CINCINNATI BRICK CLUB ROSTER.

Brick Sales Co., Hammond St., Cincinnati, O.
    Arthur Riggs.
    Don Weaver (President).
Cincinnati Clay Products Co., 534 Main St.
    John M. Stoner.
    Laurence Wilde (Treasurer).
E. F. Grand Brick Co., Mercantile Library Bldg.
    E. F. Grand.
Pursell Brick Co., Mercantile Library Bldg.
    Walter Pursell.
Builders' Material Co., Johnson Bldg.
    A. Stamm.
    G. Stamm.
Moores-Coney Co., St. Paul Bldg.
    T. Lawson Moores.
    Ed. G. Pick.
    Carl C. Walters.
D. C. Shorey Brick Co., Union Trust Bldg.
    D. C. Shorey.
L. H. McCammon Bros., Johnson Bldg.
    Walter McCammon.
    C. V. Zimmerman (Secretary).

PRIZE ANSWERS.

The first prize for the best roll-call answers at the group meetings goes to J. G. Langrabe, of the Huntingburg (Ind.) Pressed Brick Co. In response to the usual roll-call questions of trade and labor, conditions, stock on hand, car supply, fuel needs, etc., his answer was:

"We have no coal, so we need no labor; we have no brick, so we need no cars."

First prize for the best answer to the great question of the day, "what is common brick worth?" goes to Tom M. Green, of the Tom Green Brick Co., Sioux City, Iowa. His answer to this question was:

"We are getting $18.00 for common brick; they are worth more."

TEACHER'S MEMORY.

A school teacher who had been telling a class of small pupils the story of the discovery of America by Columbus ended it with: "And all this happened more than 400 years ago."

A little boy, his eyes wide open with wonder, said, after a moment's thought: "Gee What a memory you've got!"—Pittsburg Sun.

NOTES ON FLOW OF CLAY THROUGH HOLLOW WARE DIES.

*By George D. Morris.

THE notes, upon which this paper is based, have been collected in the practical handling of five distinct clays. They cover three grades of shale and two grades of fire clay. The extremes were not reached either in the shales or the fireclays, but taking the clays as a whole, the extreme limit of plastic and non-plastic clays were handled. In the manufacturing and forming of the ware the degree of plasticity is very important. A very plastic clay may form all right, but not stand the drying process, and the same may be true with an extremely non-plastic clay. The satisfactory flow of clay through hollow-ware dies is a complicated problem. We have found from study of different clays, that each clay may be classified by just the way it flows through the dies.

Visit as many plants as you wish and inquire concerning the pressure it requires to press the clay into the various sizes, and they will invariably give you the number of pounds pressure on the boilers. Referring to the press it would be the pressure on the steam cylinder C, on top of piston head P, Fig. 1. In most cases this would be about 125 pounds per square inch. That is as far as the question of pressure is generally studied. By examining different presses, it will be found that with the same size steam cylinder, there will be a different sized clay cylinder, according to the size of pipe made on that particular press, and this would give different pressure per square inch in the clay cylinder. The clay cylinders will be found to vary in size, but are readily increased or decreased by putting in a bushing when so desired. The relative pressure of the two heads on the piston varies inversely to the area of the heads. Boiler pressure times area of piston head P, divided by the area of the piston head M, will give the mean effective pressure on clay cylinder head. The area of the 44 inch piston head times 125 pounds, equals 189,250 pounds pressure. This pressure transmitted to an 18 in. clay cylinder will give a pressure of 750 pounds per square inch. The pressure of 750 pounds is six times the original boiler pressure. This enormous pressure has a very decided effect on the flow of clay through the hollow-ware dies.

The explanation will be more easily understood in the following practical illustration. Take a 6-inch sewer pipe. We desire a pipe of about ¾ inch shell thickness, that will run out straight and be sufficiently stiff to hold to shape while being handled from the press to the drying floors. It has been noted that the plasticity governs the stiffness and consistency of the clay running through the die. A plastic clay will hold its shape in a softer state than a non-plastic clay, and does not require to be pressed as close together as a non-plastic clay.

To make a 6-inch pipe run from the die straight, the finish on the die and bell must be of sufficient length to compress the clay into a sufficiently solid body, so that the clay will hold its shape (the finish of dies is shown by G and H in Figs. 1, 2 and 3). Second—The pipe must be so well pressed and knit together that it will pull loose from the socket former and hold its own weight, remaining suspended long enough to permit it to be broken off after the socket former is freed from the pipe.

With a clay having sufficient plasticity and stiffness at a certain pressure to stand the required handling, a certain rule has been found which has worked out in a majority of cases. The length of finish and pounds pressure vary inversely to the plasticity of the clay.

The less plastic a clay is, the more pressure required to press the clay to stand handling. The pressure needed varies inversely as the plasticity. To obtain more resistance in the die, the finish on die and bell must be lengthened. Whenever the finish is lengthened, the pressure must be increased if the clay is going to be stiff enough to stand handling—because when the finish is longer the resistance is greater, and with no increase in pressure the press would not press out the clay.

The relative increase of each cannot be given, but a few illustrations will be cited. A non-plastic, very gritty fire clay failed to give satisfaction with a finish of 4 inches and pressure of 550 pounds. Raising the pressure to 750 pounds per square inch a very good pipe was made. A very plastic clay used on a die with a ¼ inch finish at 450 pounds pressure proved unsatisfactory. By increasing the finish to 2 inches and with the same 450 pounds pressure the result was not improved, as the clay had to be soft at this pressure to stand handling. When the pressure was increased to 650 pounds, good pipe were made, and there was practically no loss from dropping off of crooked pipe.

Trans Am Cer Soc Vol XIX Morris

Cross Sectional Views of Sewer Pipe Press

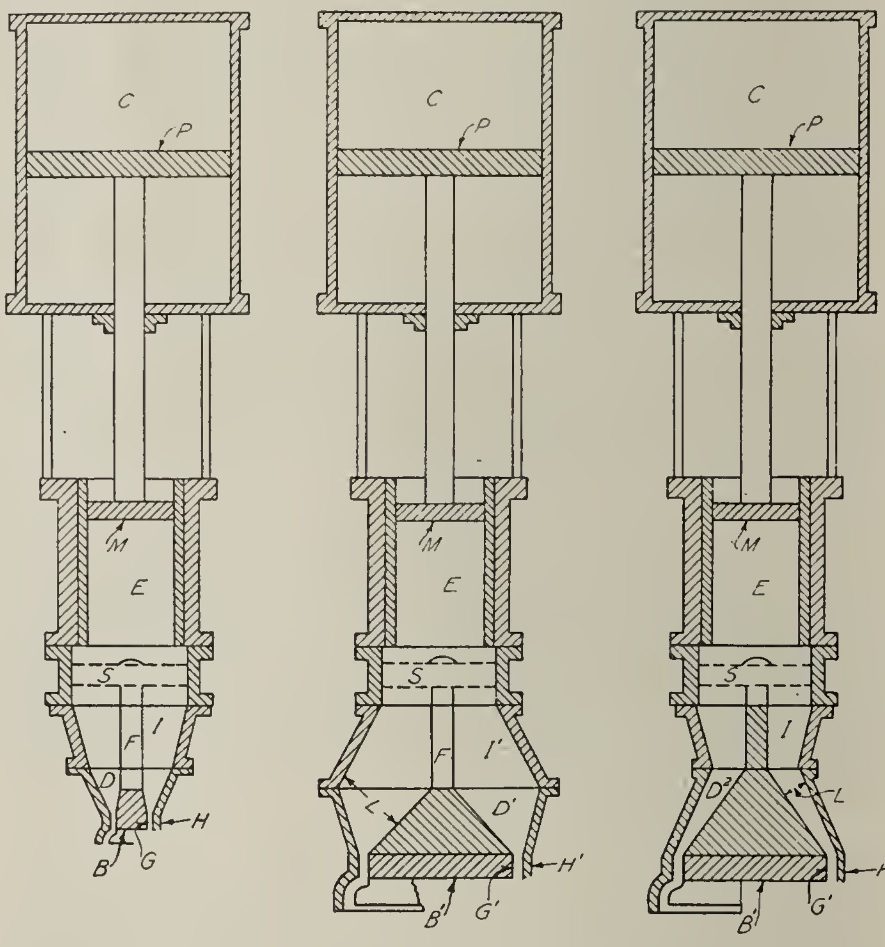

Fig 1 Fig 2 Fig 3

The larger sizes will vary under the same ratio of plasticity to pressure and finish of dies and bells. The thickness of the shell has a very marked effect on the length of finish. The required increase of finish is hard to determine, but varies directly as the shell thickness. The exact proportion would form a very interesting research problem.

The statements in this paper have been gathered from practical data; some overlap, and to the critical mind may be found to conflict, but nevertheless they would be proven by a more accurate method of determining the exact degree of plasticity, stiffness, etc.

The exact amount of pressure and length of finish required to make a column of clay run out straight from a 6-inch sewer pipe die has been discovered by the cut-and-try method. The essential requirement of a die is to make a column of clay run straight and smooth. It must press the clay together so that there will be no unequal strains. In the flow of the clay

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* Reprinted from Vol. XIX Transactions American Ceramic Society.

through a long finish die, the column is formed and compressed sufficiently, so that when the column leaves the die the clay will hold together rather than fall apart. If there is an unequal pressure on the column of clay, a strain is set up, and if the column does not break apart upon leaving the die, it will do so in drying. These unequal strains are often caused by different length of finish of die and bell or an obstruction somewhere. In Figure 3, the clay has to flow so far through so small a space that the clay will not run unless just right all of the time.

A short finish of ¼ inch may be sufficient in a very plastic clay, if the column of clay is run very slowly through the die. Increase the speed and the clay will not form a compact column. Increasing the length of finish to 2 inches or 4 inches will compact the clay solid enough so that a straight column will run out. A good illustration of the effect of short and long finish is that of nozzle used on water hose. A short nozzle will spray the water and a long nozzle with just a slight taper will shoot the water out in one straight solid column. The same holds true with a sewer-pipe die. The column of clay must not spray, but must run in a straight line.

From the above statement it would appear desirable to make all long-finish dies; but as again with the water nozzle, too much nozzle or friction causes unequal flow of water. Too much finish retards the clay, causing unequal flow.

The construction of dies is very interesting, and many times it is a very troublesome problem to overcome some of the difficulties. A press having a clay cylinder of 18 inches has been cited in the above paragraph, and invariably the "old timer" will say a press of that size cylinder will not make larger pipe than an 18-inch successfully. Understand right here it is not the clay cylinder that forms the pipe, it is the extension connecting the die to the clay cylinder. Figure 2 shows a cross section of a large size die, and if plenty of room is given at L, no trouble will be experienced. If the die is constructed as in Figure 3, there will be no end of trouble with the die due to the uneven running of clay through such a narrow space. Laminations and blisters are augmented by the narrow approaches to the finish of the die.

NEW PLANT FOR SOUTHERN INDIANA.

Work was started a few days ago on the new plant of the Best Brick Company, organized recently at Evansville. The plant is being built on a site on the Evansville and Henderson interurban line near one of the plants of the Standard Brick Manufacturing Co. The plant will be the first Evansville concern to turn out brick with gas fires. The kilns will be fired entirely by gas burners on a new system which has been recently perfected. W. P. Wood, one of the directors of the company, has just returned from a trip taken for the purpose of visiting several plants which are using gas heat. He reported that the new system is a great improvement and will save a great deal of labor.

The company is now building a 1,500 foot driveway into its site and materials for the buildings are being unloaded from the cars. Eight units will be put up. There will be six kilns, a dry shed and a machinery shed. All of the units will be of brick and work on the foundations will start this week.

The company will make a high grade rugby face brick, Mr. Wood told The Clay-Worker scribe, and the plant will be in operation by the first of March.

The only other gas burning brick plants in southern Indiana are at Tell City, which was the first one in southern Indiana; and at Huntingburg.

The directors of the company are: W. P. Wood, C. E. Schutz, W. L. Tucker, Theodore Gerke, George Herman, Louis Ernst, and A. G. Sterm. Columbus Self will be the superintendent of the plant.

MILWAUKEE AND WISCONSIN BRICK AND CLAY NEWS.

BOTH THE SELLER and manufacturer of brick and clay products in Milwaukee and throughout the surrounding districts report November, from the standpoint of volume of business, as the greatest in the history of the industry. Everyone seems to be of the opinion that there will be no closed or dull season, at least there has been no indication of such a slackening up to this time. A most optimistic spirit and attitude prevails anticipating the continuance of big business, and strong prices. As a result of this phenomenal demand, prices are steadily climbing skyward and today are higher than they have been for many years and will be no surprise to see prices boosted within the next several months.

Winter building and construction activity in this district is most phenomenal, continuing on as large a scale as for the several months previous. As a result the demand for brick, especially common brick, has been very heavy.

Recent figures from the local building inspector's office indicate that permits are being taken out in greater numbers than ever, including work of all descriptions from small dwellings to immense new public and industrial plants and additions. During the month of November total building permits issued in Milwaukee aggregated about $2,000,000 as compared with about $230,000 for the same period in 1918. With the last leg of the year to go it is safe to say that Milwaukee alone will have a $20,000,000 building year. This is more than $5,000,000 in excess to the biggest building boom Milwaukee has ever experienced which was in 1912, with a total of about $15,000,000.

While Milwaukee has reached the peak of the biggest home-building boom in its history there still remains an alarming shortage of housing units which bids fair to an immense activity for next year. The Own Your Home campaign which was inaugurated upon the request of the United States Department of Labor is already showing its effect in the greatly increased number of bungalows and dwellings being built. According to local builders and real estate men the retarding factor in home building is not in financing, but in the inability to procure labor and materials.

The number and amount of permits taken out recently for industrial plants and public construction work is also staggering. More schools and public buildings have been erected during the past year than in several previous years combined it seems. This is true of both rural districts and larger communities. Big industries throughout the state in their attempt to increase production have doubled and tripled the size of their plants by immense additions, while the prosperity has tempted others to erect entirely new and adequate factories. It is interesting to note that most all of the large projects are of brick and concrete combination, brick playing the major roll.

The plant of the Kewaunee Clay Products Co., of Kewaunee, Wis., is being extensively repaired and rapidly whipped into shape so that quantity production may begin before the close of the year. According to C. A. Wilson, president of the company, sufficient contracts are already on file to absorb the entire tile and brick output of the company for the next four or five months.

It is reported that M. J. Schmit and Wm. M. Schmit have purchased the Verhalen property at Saukville, Wis., and will start immediately in erecting a modern tile factory, 30x100 ft., capable of producing from six to eight thousand feet per day. They have also purchased the Juhre gravel pit at that city.

A. BADGER.

RECENT PATENTS.

[Full details and specifications of the following patents may be had by addressing **The Commissioner of Patents, Washington, D. C.**, and enclosing ten cents for each patent desired. In ordering, give number of patent only.]

No. 1,320,471. BRICK AND STONE PRESS. John T. Jackson and Samuel Jackson, Toronto, Canada, patentees.

In a brick press, a frame, a mold supported intermediate of the height of said frame, a movable die adapted to close the top of said mold, a movable die closing the bootom of said mold, a toggle member supporting said bottom die and supported on a rigid bearing, means for operating said toggle member, and means for lifting said toggle member clear of its bearing support to raise the bottom die to discharge the bricks.

No. 1,320,707. MOLDING APPARATUS. Albert A. Pauly, Cleveland, Ohio, patentee.

In an apparatus of the class named, the combination of a horizontally discharging mold having an open top and bottom, a cover plate for closing the top of the mold, a pallet adapted to close the bottom of the mold, and means for moving said pallet longitudinally of the mold with the article thereon to eject it from the mold.

No. 1,320,813. PRESSING MACHINE. William Wilkie, Glasgow, Scotland, patentee.

In a machine of the type named, an upper block slidable horizontally and longitudinally in relationship to a lower adjustable block adapted to be raised and lowered and exert pressure on the under surface of said upper block, a pair of plungers depending from and connected to the under side of said lower block, a pair of levers fulcrumed on a single transverse horizontal bar carried in the framework of the machine and acted upon by a foot pedal; a bar interposed between the lower ends of plungers and the free ends of the aforesaid pair of levers having inclined planes formed on the upper side and capable of sliding underneath said plungers by lever mechanism, and means to return the pedal to normal position.

No. 1,322,646. VENTILATED BUILDING TILE. Halvor Straight, Adel, Iowa, patentee.

For building purposes, a plurality of tile arranged in courses, the upper and lower surfaces of the tile being inclined from one surface of the wall or course downwardly and toward the opposite surface, the ends of the tile being arranged in vertical planes, each of said tile having near its side edges comparatively narrow inclined portions terminating in shoulders for the retaining of mortar; reinforcing between the courses of mortar for said reinforcing whereby the mortar around the reinforcing may be thickest at the joints between the tile.

No. 1,320,647. USE OF TILE IN WALLS. Isadore Pomerantz, Kansas City, Mo., patentee.

A wall construction consisting of two sets of tiles superposed one upon the other in alternate rows, those of one set each having a horizontal web portion with vertical side flanges above the below web, those of the other set consisting of block members having separate halves arranged back to back, said block members having upper and lower tongues intermediate the side faces thereof, the tongues fitting into the space between the flanges of the other set; longitudinal alignment grooves in the adjacent back faces of the opposite halves of the respective blocks, and S-shape key members engaging the grooves to secure the two halves together.

No. 1,322,004. TILE. Robert W. Schweimler and Paul Poulalion, Wheeling, W. Va., patentees.

A floor construction comprising tiles, each tile having at its lower face oppositely-extending flanges adapted to about the corresponding flanges of adjacent cores to space said tiles, each tile having its side walls provided with ribs, a facing of plastic material filling the spaces between the tiles above the flanges and interfitted between and retained in position by the ribs.

No. 1,323,110. BRICK WALL CONSTRUCTION. Walter R. Simons, Pasadena, Cal., patentee.

A bollow brick wall construction which comprises two walls spaced apart having a plurality of semi-circular recesses, and a plurality of bonding bricks having semi-circular ends connecting said walls, the ends of the said bricks fitting in said recesses.

No. 1,319,336. REINFORCED BRICK WALL. Frederick Heath, Tacoma, Wash., patentee.

A reinforced wall consisting of blocks laid horizontally in courses, one above another, and of which certain courses comprise separate blocks in the width of the wall and have running joints between such blocks, the cross or end joints of the blocks of the several courses being arranged in break-joint relation with the cross joint of alternate courses in vertical alignment, also reinforcing bars extending veritcally through the wall.

No. 1,319,113.. BUILDING BRICK. Daniel E. Reagan, Columbus, Ohio, patentee.

As a new article of manufacture, a building brick having a plurality of equal-size holes arranged in quicunx form through the same, the outer holes of the series being equidistant from the ends and sides, and approximately twice the distance from each other as they are from the ends and sides, and the center hole equi-distant from the outer holes, and a groove at each side midway the ends of the brick, the said grooves being approximately the diameter of the holes in the brick and shaped to conform therewith, substantially as and for the purpose set forth.

No. 1,219,056. REFRACTORY MATERIAL AND METHOD FOR MAKING SAME. Bernard Enright, Allentown, Pa., patentee.

A refractory material which comprises in its composition dolomite which has initially had a considerable silica content, calcined, and as calcined containing calcium and magnesium silicates, with a negligible amount only of the uncombined silica.

No. 1,320,082. ARCH BRICK. Charles E. Miller, Chicago, Il., patentee. Patent assigned to Universal Arch Brick Co., Chicago, Ill.

A vertical baffle-wall brick of T-shape, the side edges of the head of which being adapted to co-operate with the edges of the foot of a duplicate brick against later separation in one direction, both the head and foot being wedge-shape; a plurality of said bricks being adapted to be associated in end-to-end relation and to be held in interlocked position, substantially as described.

No. 1,314,871. APPARATUS FOR FUSION OF REFRACTORY MATERIALS. Ralph A. Hoyle, Worcester, Mass., patentee.

An apparatus as described, the combination with a row of aligned depressions or pits of a single overhead traveler associated therewith, electrodes carried by the traveler and means for raising and lowering the electrodes with respect to the bottom of each pit over which the traveler is disposed.

CINCINNATI BRICK AND BUILDING NEWS.

WINTER IS HERE, but the indications are that there will be a continuation of building operations for a time at least, or in fact so long as the workers can continue to lay brick. Building operations are not, however, as active as they might be, the old troubles still acting as drawbacks to the interest in this way. Prices on material and labor are both high, and the difficulty in obtaining materials with the despatch that is demanded makes it harder to increase the number of structures. Naturally the weather is not conducive to much in the way of building, and while there is a serious shortage of homes, still the public appears to have become accustomed to this state of affairs, and is making the most of the situation.

And still there have been a very fair number of buildings begun and others are to be put up soon. Then there are some large projects under way and others that are sure to materialize and these will make the sum total very promising. Brick or other kinds of clay products always come in for a good share of the materials used, and this should help the local clay men. The aspect is therefore, not nearly as dark as it might be, and the situation offers some very promising indications of even the winter being rather active. The weather has been, with a rainy spell now and then, very favorable for outdoor work and has given the contractors a good chance to hasten work.

A course in practical bricklaying is to be taught in the schools of Cincinnati, Covington and Newport, Ky., by the several unions in the aforesaid cities. The same will be established in the bricklayers' headquarters, southwest corner of Clark and John streets. The course was opened December 1. A portion of the building will be turned over to the new department and young men learning the trade will be required to attend classes two nights each week for a period of four years. The rule will apply to all registered youths in the craft.

It is to be known as the School of Science, and is established by the Journeymen Bricklayers, with the expectation of obtaining such results from the course that the boys will not only be able to handle their trowels successfully, but learn the reasons why one applies the mortar to bricks, why too much mortar and not enough mars the work and what proportion of ingredients constitutes good mortar. The apprentices will also be required to figure the bearing strength of a cubic foot of brick work, and to learn its weight, as well as work from plans and specifications. Under the present plan, after a boy becomes a registered apprentice, he serves six months of his time with a contractor to whom he has been assigned.

The tenth annual convention of the Mason Contractors' Association was held here on December 1, 2 and 3, at the Hotel Sinton. All phases of the brick manufacturing and bricklaying industry were discussed. The convention was opened by W. W. Wise, Indianapolis, Ind., International President. There were delegates from both the United States and Canada. Some matters of interest were brought up.

Seventy-nine brick manufacturers were entertained by the Cincinnati branch of the Face Brick Dealers' Association of North America, on the evening of December 1, at a dinner given at the Hotel Gibson. The delegates were from a number of outside cities, on their way to the national convention held at French Lick Springs, Ind. Some of them were from New York, New Orleans, Northern Ohio. John M. Stoner, president, and Don Weaver, secretary, of the Cincinnati branch had the matter in charge. A number of the local face brick men went to the convention.

The United States Geological Survey has announced that Ohio is the leading pottery producing state in the Union, the value of the pottery wares produced in the state in 1918 showed an increase of 21 per cent. over that of 1917. The wares manufactured in 1918 were valued at $25,779,654. White ware is the principal line made.

The Business Men's Club is contemplating the building of a new structure for its use. Plans for the building have been prepared by Samuel Hannaford and Son, and Garber and Woodward, associate architects, before the United States entered the war. These were laid aside. There are to be modifications in the plans, however, the same to call for a ten-story building, with furnishings to cost about $1,500,000. The location of the same is at the corner of Eighth and Race streets.

A building to cost about $150,000 is to be constructed at the northwest corner of Eighth and Broadway by Lloyd Baker. The contract has been awarded to the Ohio Building and Construction Co. It will be 75 feet square, three stories high and basement.

A new lodge building will be constructed by the Walnut Hills Lodge No. 483, F. and A. M., on McMillan street near Alms place. The cost of the improvement will be $60,000. The plans have been discussed by the members, and the ground has been purchased for the new building.

About $720,000 will be spent by the Board of Education for a new school for negroes at the southeast corner of Seventh and Cutter streets. The plans are ready and work will be started before a great while. It will be of the modified Spanish Renaissance style of architecture. It will contain 30 regular class rooms and many other modern conveniences. It will be of pressed brick, terra cotta trimmings and tile roof. Tietig and Lee are the architects.

Another school to cost $60,000 will be erected on Herschel avenue, opposite Ault Park, Mt. Lookout. Tietig and Lee are the architects for the building. It will be one story of the bungalow type. It will be 135 feet long by 62½ feet deep, with four class rooms. It will be of brick construction.

The new show room and offices of the Cincinnati Clay Products and Manufacturing Co., has been about completed and the interior is one of more than passing attraction. The entire interior is replete with decorative effects made of clay products, and the idea of showing the face brick on panels that can be moved about is one that appeals on account of its novelty and despatch. The reports here are to the effect that the demands are only fair at this time.

The report at the office of the F. E. Grand Brick Co. is that the situation is somewhat inactive now, and the indications are not as promising as they might be. However, the weather and the other obstacles are not calculated to help matters at this time.

The Cincinnati Clay Co. says that the situation now is slow. The plant is not operating because the coal miners at the mines owned and operated by the company, are on a strike. The demand for sewer pipe is not very brisk however, at this season of the year.

Business is just fair with the Purcell Brick Co., but of course there is little to be counted on for the present season, as the winter will not help matters in this way. Indications for the next year are very good, and with the labor and coal matters taken care of there will be somehting worth while to count on then. CINCY.

THE NEW HOME OF THE CHICAGO BRICK MACHINERY COMPANY.

THROUGH the courtesy of John J. Moroney, president of the Chicago Brick Machinery Company, we are enabled to give our readers a glimpse of the new home of the Chicago Brick Machinery Company and other enterprises in which the redoubtable John J. Moroney is the presiding genius. The accompanying pictures, especially the interior views, will be of interest to his many friends in the brick and tile trade, and perhaps no one in the clay machinery line has more personal friends in the industry than he.

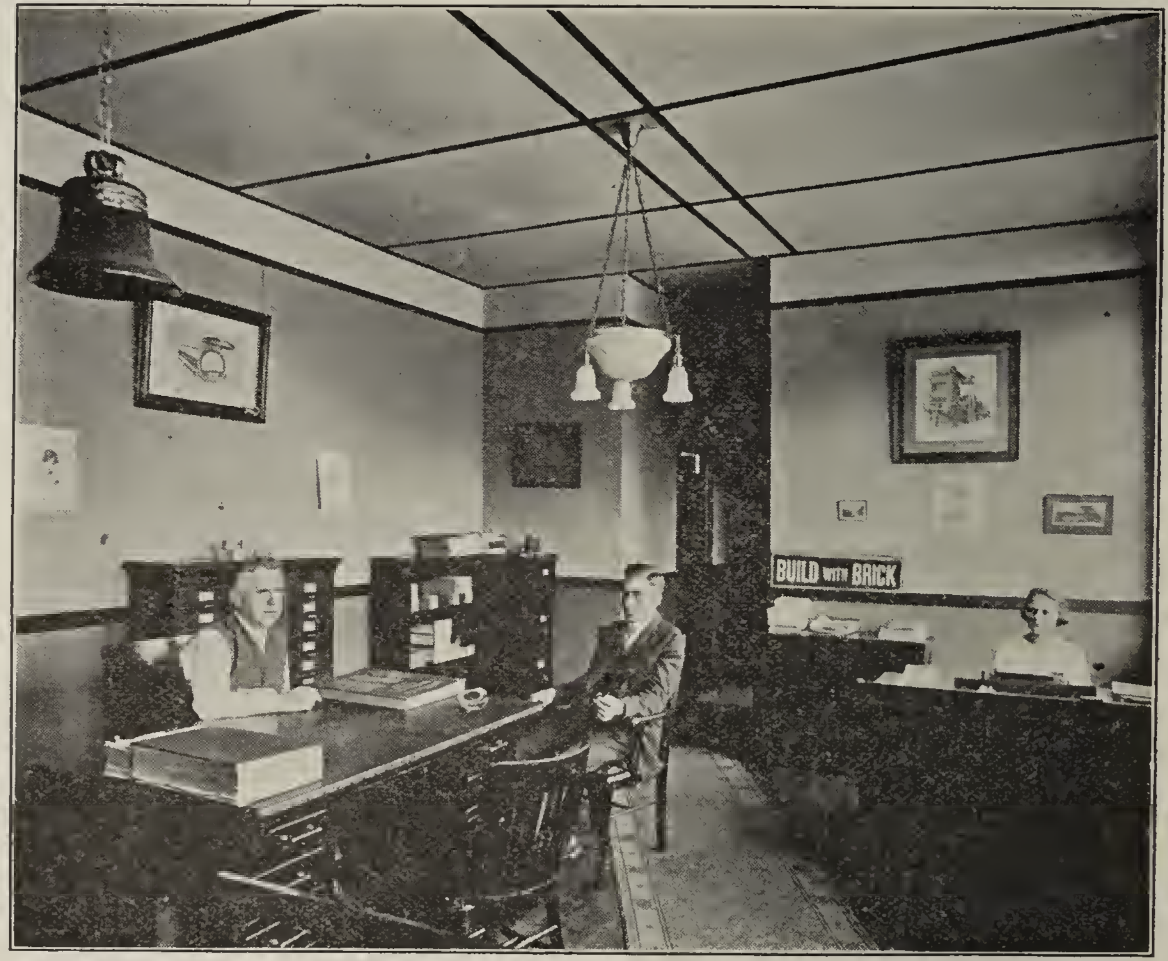
The building is a handsome two story red brick structure. We are inclined to think that if green brick had been obtainable, they would have been preferred for John is Irish and proud of it. For a number of years he has favored his friends with St. Patrick's Day post cards with each recurring anniversary. The 17th of March is a National holiday with John always. It is a trite saying that the Lord loves a brave man and John meets that specification. He admits that he was born in Chicago where from boyhood up he has been engaged in the brick machinery business and allied interests.

John J. Moroney, Chicago, Ill.

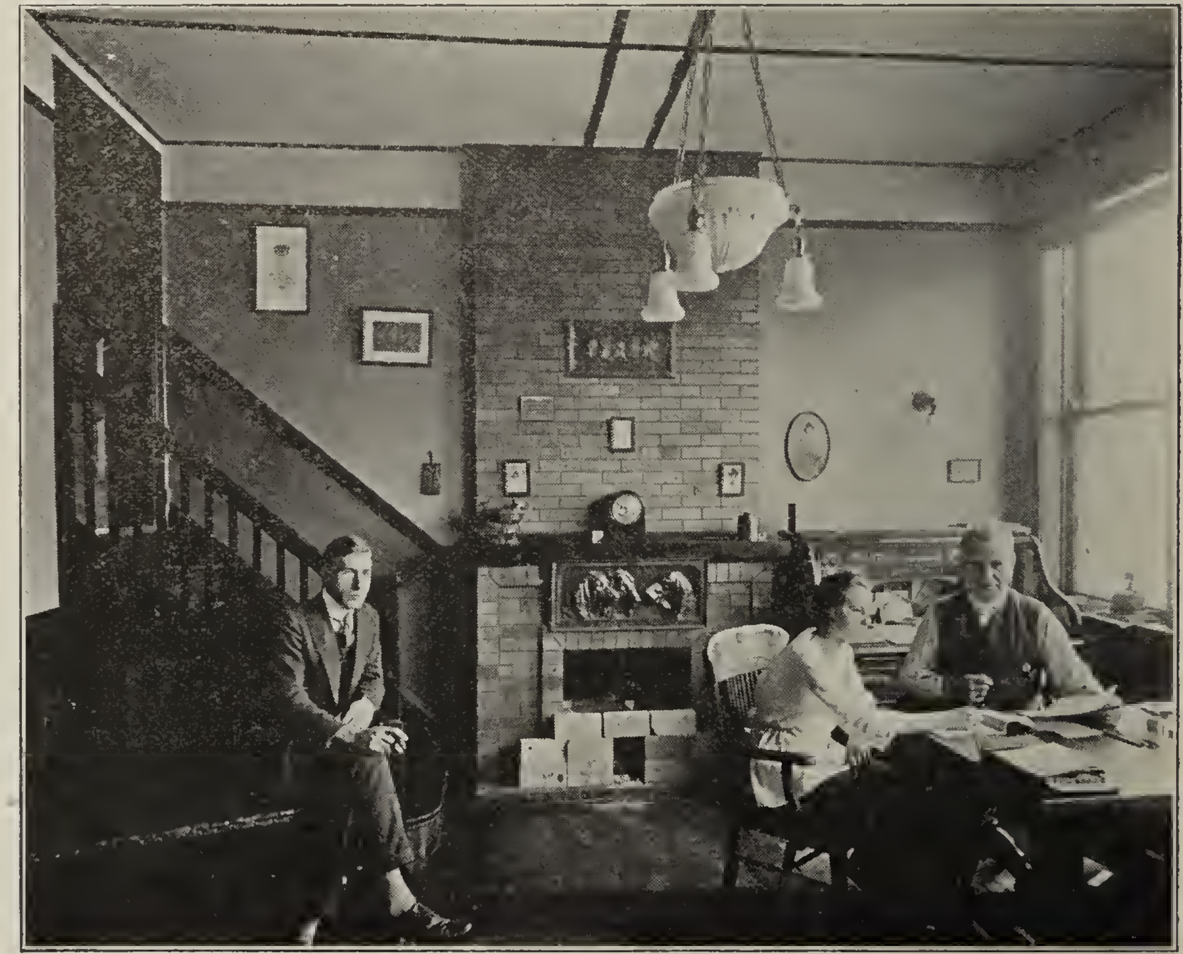
A year or more ago he became interested in the Jackson Fire Brick Co. The factory is at Jackson, Tenn., and a goodly part of its product finds a market in Chicago and the immediate vicinity, consequently a large part of the ground floor of the new building is used as a stock room for fire brick and block, a stock of all sizes and shapes being stored there to meet local demands.

"John" is also the chief executive of the U. S. Rocking Grate Bar Company and has equipped the boilers of many large establishments with patent grate bars which are naturally more than ever in demand now that economy in fuel and labor is so essential in industrial work. The rocking grate bar is both a labor saver and a fuel saver.

Another of "John's" interests is the Tecktonius Kiln and Kiln Lugs for which he is the sales agent in the United



Front Office, Chicago Brick Machinery Co. Note John's Liberty Bell.



Inner Office Chicago Brick Machinery Co., in which there is a Very Cozy Fireplace.

States and Canada.

As shown in the accompanying views, the offices, which are on the second floor, are both spacious and cozy, as visiting clayworkers will find. It goes without saying that they are cordially invited to call whenever opportunity offers. Strangers in the Big City will have no difficulty to locate the office which is at 2825 W. Harrison St. The Harrison St. trolley car passes the door.

HEARD IN NEW ENGLAND.

WHILE building operations are closed almost through all the six states some work is still in progress in the southern part of Connecticut and a little in Massachusetts. It is not large, but it is indicative of the prospects for better building next season. Prices of brick reached a high range before the season closed. In Boston brick sold as high as $24.00. In Worcester the price was $23.00 or thereabouts. Springfield saw the price at $21.00. Holyoke quoted $22.00. Greenfield made prices which ranged around $20.00. Hartford, Conn., made a price of about $19.00 to $20.00. New Haven made a price of about $19.00. Bridgeport quoted $21.00. Providence, R. I., sold brick for $21.00 to $22.00. And these prices ruled throughout New Hampshire in the larger cities and about the same figures were charged in Vermont, though the smaller towns cut these prices from $2.00 to $3.00 in most instances. The prices are considered high, but the demand for building is so great that contractors and others are paying the price and letting the investor meet it.

F. A. Meader, superintendent of the Purington Brick Company, Skowhegan, Me., is having trouble getting wood with which to burn next season. He is almost as hard pressed for fuel as some of his confreres who are burning coal. He wants 350 cords and at last accounts has not succeeded in getting more than half that quantity.

The Rutland Fire Clay Company, of Rutland, Vt., has put on a night shift in the grinding room to enable it to keep pace with its orders. According to A. W. Perkins, the president of the concern, the business done is increasing very rapidly and further development is contemplated. They are preparing to sink a new shaft for mining red clay immediately.

HIRAM.

OPENS CHICAGO BRANCH

AN important development of the belting industry in the Middle West is the announced establishment of a Chicago branch by the Gandy Belting Company, of Baltimore, Md. The new branch, which will be put into operation in the near future, is expected to carry one of the largest and most complete stocks of belting in the country. It will be situated at 549 Washington Street, corner of Clinton, in the heart of the machinery district.

In opening a branch at Chicago, the Gandy Belting Company expects, in addition to a prompt filling of its orders from that city, to increase the efficiency of the service for which Gandy has always been noted.

Fielder I. Schillinberg, Jr., who has been in charge at the New York office of the Gandy Belting Company, has been transferred to Chicago where he will act as manager of the new branch.

Speaking of the need for a new service station one of the Gandy officials said:

"Under the spur of reconstruction, mechanical activity has increased enormously and its pressing needs can be adequately met only by prompt, efficient service—complete stocks near at hand for the quick filling of orders. Gandy service has kept pace with industrial growth for more than forty years and the establishment of our new branch in Chicago is a logical step in the development of a big enterprise to meet the increasing demands for Gandy belts in the industrial and farm machinery fields."

Office and Store Room of The Chicago Brick Machinery Co., 2825 W. Harrison St., Chicago.

NEW JERSEY'S NEW CERAMIC BUILDING.

THE JERSEY Clay Workers' Building Committee has held two meetings and have a campaign well mapped out for the development of the project to erect a new ceramic building in connection with Rutgers College for a School of Ceramics. The committee is enthusiastic over the prospect for success and expects that little difficulty will be encountered in securing the funds and in getting the new school well started.

It will be remembered that this project has been under discussion for some years and last year, when the New Jersey Clay Workers' Association met at New Brunswick, Charles Howell Cook, president, presented the matter so forcibly that any who felt lingering doubts about its efficacy were speedily won over and the project went a long ways farther ahead. A committee has been appointed to take the matter in charge. That was provided for at the clayworkers' meeting in Trenton, last June. The committee is made up of the following gentlemen:

Abel Hansen, of Ford's Porcelain works, Perth Amboy, chairman; Prof. George H. Brown, of Rutgers College; Charles A. Bloomfield, of the Bloomfield Brick Company, Metuchen; Charles Howell Cook, president of the Cook Pottery Company, Trenton; A. M. Maddocks, of Thomas Maddocks Sons, Trenton; R. L. Brown, of J. L. Mott Company, Trenton; Herbert Sinclair, of the Star Porcelain Works, Trenton; Aug. Standt, president of the Perth Amboy Tile Company; John A. Campbell, president of the Trenton Potteries Company; H. W. Wolff, vice-president of the Monument Art Pottery Company, Trenton; John Pfeiffer, of Henry Maurer & Sons, Perth Amboy; B. B. Dinsmore, of the Imperial Porcelain Works, Trenton.

At the opening of the meeting of the committee, President Cook presided until the chairman was chosen. His remarks concerning the necessity of the building and the opportunities such a school would afford to those who want to study more thoroughly ceramic work were illuminating and convincing.

Discussion followed and various plans for securing funds were outlined with much of other suggestions which will have an important bearing upon the development of the project.

It was pointed out that the school is to be a benefit to one of the principal industries of the state, therefore, it is deemed advisable to ask the legislature for an appropriation to assist in its construction and equipment. Inasmuch as the state assists many other projects many of which are less meritorious from the standpoint of industrial development than this and therefore, it was felt that it is no more than right that the legislature should be asked to give liberally toward the building and its equipment.

By way of suggestion it was stated that frequently helpful projects of this character fail to secure the help to which they are entitled because the influence brought to bear upon the members of the legislature is insufficient. It was suggested that each member of the committee take it upon himself to see and talk with members of the legislature and enter into the plan as heartily as though he were the only one who was to do anything. And the committee undertook to carry out that suggestion. Moreover, each member of the association is requested to do the same, thus insuring a much wider interest and perhaps a stronger influence upon legislators than could otherwise be assured.

The building and equipment will not cost much over $100,000. It is to be of burned clay, all of which will originate inside the state. And it is to be erected in connection with Rutgers College and become a part of the college equipment for teaching industrial arts, the same as the engineering school and the other technical departments.

While no time can be given for the completion of the building it will probably be ready within a year. The members of the committee hope so at least for they want to get the school at work so that those desirous of pursuing the study of ceramics can do so to better advantage than is possible now, though that department at Rutgers is manifestly one of the best in the East. And, too, the patronage this college year is the largest the school has ever known. Prof. Brown's work there is too well known to require boosting, but it is not too much to say that he is performing it for the advantage of his pupils and of the entire clay industry as a whole.

GEN. DU PONT CALLS COLLEGES, FACTORIES.

IN THE EYES of General T. Coleman du Pont, formerly head of the du Pont interests and The Equitable Life Assurance Society and now President of the Alumni Association of the Massachusetts Institute of Technology, colleges and technical schools are fundamentally factories, in which the raw material is the youth of the nation and the finished product is the men and women who are responsible for the preservation of the ideals of civilization and the progress of industry.

In speaking to the Alumni Association of the Massachusetts Institute of Technology, in connection with the campaign now under way to raise an Educational Endowment Fund of $8,000,000, half of which is already promised on the condition that Tech shall raise the other half, General du Pont called attention to the interesting coincidence that at the close of the second great war in its history, the Massachusetts Institute of Technology should again come before the nation asking for approbation and support. The Institute was founded at the end of the Civil War, when advocates of technical education laid their plans before the Legislature of Massachusetts and asked for their approval and backing. Then, as now, those to whom the appeal was made realized that our national strength lies in our industries and our industries draw to a large extent upon the technical schools for their leaders.

The success of the original appeal is known not only to every Tech man, but to those whose acquaintance with the great educational institutions of the United States is more a matter of hearsay than personal knowledge, except as it applies to their own alma mater, and this success, together with the Institute's record in the country's service, in times of peace as well as in times of war, has encouraged an appeal, not only to the people of Massachusetts, but to the whole United States for the means of establishing a greater Technology.

The solid foundations on which to build this greater Technology have already been laid. The present plant, to quote General du Pont's term, which has an outside capacity of 2,500 men, can with relatively little alteration be accommodated to the needs of 3,000 or 3,500 men. The great need is money. The arrears of the past two years of war, when the Institute was kept open for the benefit of relatively few students, must be made up, and provisions made for the enormously increased enrollments of this and next year, when all of our young men are released from war-time service and can turn to the business of education once more. Registration at the Massachusetts Institute of Technology this year is 3,092, or over 58 per cent. greater than ever before and it is a significant fact that a large share of the increase is composed of men coming from other colleges, academic institutions for the most part.

General du Pont emphasized the fact that the trend of the day is toward technical education. The whole world of commerce is looking to America for opportunity and leadership and America is looking to the men of Science, the men of practical scientific training, for guidance. The Massachusetts Institute of Technology has proven itself able to develop such men and if given a free hand and the necessary support will become an even greater bulwark of strength to the nation.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS

ALONG WITH the ever increasing demand for clay products various problems have to be faced by members of the industry such as labor conditions, deliveries, etc.

A longshoremen's and teamsters' strike in October and November resulted in some difficulty as to shipments in and out of San Francisco, bringing the price of deliveries up about 100 per cent. over the former cost. This situation was greatly offset, however, by the increased facility in securing labor for the factories in this vicinity. The shipyard strike which threw about 60,000 men out of work sent a great many of these workers into other lines—and while the lack of skilled help is still scarcer than the manufacturer would like, the ordinary laborer can be found willing to work and to work without exorbitant wages.

The plants about the bay are all working at full capacity, and there is not an office in San Francisco but which reports excellent business at this time and even better prospects for the future.

The number of plants located in the valley sections of the state which have increased production to a considerable extent recently, together with several entirely new manufacturing and jobbing concerns which have been started during the past few months is an indication of the increasing activities in the brick and clay industry in this part of the country and it is the opinion of those in the trade that the new year will fulfill the present hopeful expectations of the manufacturers.

The largest increase in building permits in the state for the month of November was noted in Los Angeles. A jump of over a million dollars is shown on the reports and a large share of this additional business will get into the hands of the clay building material men without a doubt.

A large number of advance orders are on file at the Richmond Pressed Brick Works at Richmond, Cal., and the plant is working at full capacity in order to get timely production. The Port Costa Brick Works also report unusual activity and are looking forward to increasing the capacity of the plant at an early date in order to accommodate the growing business.

The California Brick Company and the Livermore Fire Brick Works have opened a service yard in San Francisco for the greater convenience of their customers. The yard is located at 7th and Hooper streets and will carry a stock of the following products: Vitrified paving brick; sewer brick; step and walk brick; red ruffled brick; red pressed brick; common brick; partition tile; hollow building tile; fire brick flue lining; ground fire clay; brick dust; fire tile; enameled brick; buff brick and old gold brick. In addition to these products which will be kept for immediate disposal, architectural terra cotta will be obtainable on orders. The Livermore Fire Brick company is making extensive improvements to the plant at Livermore, Cal., in the expectation of doubling its capacity immediately after the first of the year.

The Bakersfield Unit Brick & Tile Co. of Bakersfield, Cal., has applied for dissolution.

It is understood that an 80-acre ranch, situated on the Sanger Road about four miles east of Fresno, Cal., which was recently purchased by John Etzenhauser of Visalia and J. W. Fewel of Fresno, will be taken over by the Pioneer Brick Company of Visalia, Cal. The samples of soil taken from the holding are said to show suitable clay deposit and it is reported that the brick company will erect a factory there in the near future. There is a shortage of clay in this particular district and it is thought that the property will be of great value to the industry.

The unusually large clay deposits in the vicinity of Paso Robles, Cal., has led a number of business men of that section to take up the matter of the erection of a brick plant at Paso Robles with the Chamber of Commerce of that city. It has been suggested that such an investment be made early in the spring of 1920. It is reported that local capital is interested.

Keen interest is being taken by San Francisco manufacturers in the proposed erection of a twenty-five story office building which is planned for the site of the present Crocker building. The present plans which were drawn by Willis Polk & Co. call for considerable hollow tile and brick and it is thought that the contract will be distinctly worth while to the trade here.

An exceptionally large brick contract was made for the Balfour-Guthrie building now being erected in this city. It is estimated that about 1,000,000 will be used. A future building contract which will call for a large amount of brick is that of the new Federal Reserve Bank building. The structure will be 15 stories, located on the site of the present building.

The local firm of White & Gloor are to do the brick work on the new State building in the San Francisco Civic Center. This contract was let by the original contractor.

A group of school buildings are to be erected in Anaheim by A. L. Gribling of Los Angeles, Cal. The entire group will be roofed with tile while a large quantity of brick will be used in the general construction. The contract price of the group is $103,493.

A brick radial chimney, 150 feet in height and 10 feet in diameter is to be erected at the Mare Island navy yard. Bids are now being received at Washington.

A particularly large amount of architectural terra cotta and roofing tile will be used in the construction of the Postoffice building at Honolulu, Cal. The lowest bid on the entire job was submitted by the Campbell Building Company of Salt Lake City. The amount is $1,056,500.

San Francisco, Cal. SUNSET.

METAL CLEANING.

THE KEEPING of polished metal parts bright is a point which exercises the minds of both the mechanical and domestic possessor of such articles as are finished bright, and very largely both classes of persons concerned fall into the same errors. Thus, with lacquered goods which only want to be sponged over with water and dried with a soft leather to keep them in good condition for years, either ammonia or strong alkaline washes are used which remove the lacquer by chemical action, or abrasive polishes are used which remove the lacquer mechanically. With bare metals also acids are used instead of decently made abrasive polishes, and because they clean quickly the after effects are not considered until they are too bad to easily rectify. As a rule very little is needed to keep bright metal in good order if regularly cleaned, as a wad of hard thread waste mineral lubricating oil will clean off several days' dirt, and whitening, rotton stone, or extremely fine emery, plus "elbow grease," dirt of many weeks' accumulation is easily removed.

LATIN AMERICA A WAITING MARKET FOR UNITED STATES BRICK

Alfred Thomas Marks

WITH A FOREIGN TRADE in American building and fire brick which in the year ended on June 30, 1919, totaled over $5,000,000—four-fifths of which went to Canada and Latin America—it will be profitable for our brick manufacturers to take advantage of present conditions to secure a permanent hold on this export business.

While not at present our best customers on the western hemisphere, the Latin-American countries certainly offer the most potential and promising markets at this time; and this being true it will be "good business" to enter upon an investigation of these nations and the probable field there for our brick.

The writer spent a number of months in 1919 in Rio de Janeiro and other Brazilian cities, and was enabled to observo the possibilities there for United States brick; while previous visits to Argentina and the west coast countries gave a fairly good opportunity to know just about what our manufacturers of brick and brickmaking machinery may expect.

Our two best customers for American brick of all kinds in the southern countries are Cuba and Chile, with Mexico a close third. To these three countries alone we sold in the year ended June 30, 1919, over $860,000 worth of brick (building and fire) and nearly $200,000 worth of drain tile.

This trade, as is well known, came to us largely without effort to speak of on our part. The big, outstanding question is: What could we do if we went into these fast-growing markets in an energetic and forceful American way?

Brazil is one of the most potential of all the South American markets for our brick and tile. This is true for many reasons, the chief of which is that it is only within the past few years that the advantages of the use of brick over other building materials are being thoroughly understood and appreciated. Practically all of the older structures (especially residences) in Rio de Janeiro, Sao Paulo, Bahia, Porto Alegre and Santos are built of adobe, but all of the newer structures are of either brick or cement. Wood is but little used for building purposes, for the reason that the wood-boring insects of the country soon make it necessary to "scrap" the structure.

Brazil is just really commencing to grow. With an area exceeding that of the United States, with a people who welcome American products, with a high rate of per capita wealth, with the use of brick increasing rapidly—the outlook there for our United States products in these lines is most promising.

Speaking with a prominent building contractor in Rio de Janeiro, the writer was told that "American brick producers should not delay in meeting the brick needs of the country." Said he: "Your American brick and brick-making machinery are well known and well liked here, and there is no good reason for not building up a fine trade in the cities and towns all of which are growing fast and are prosperous. As we see it here, from the builders' standpoint, about the only thing which stands in the way of a good volume of trade in all of your clay products, including brick and tile, is the matter of transportation—and that's exactly what stands in the way of our using great quantities of European-made brick, which we cannot get at this time under any circumstances, even if we had the transportation. So you see it is almost entirely a matter of delivering the goods. The demand for building brick in Brazil is fast increasing, and brick is far more popular than any other building material today, except possibly cement. In fact, I look on brick as the coming building material of the country. It will be many years, if ever, before Brazil produces enough brick to meet its needs. At present practically none is being made, although quite a little American brickmaking machinery is in the country.

"Get the means for transporting your brick, and the market is here."

All of which is well worth digesting by our brickmakers, and especially those who are looking toward a widening of their sales fields.

What is true of Brazil is more or less true of all the larger South American countries—delivering the goods. This I found to be one of the first questions asked by South Americans when the matter of a market for our brick products was mentioned. The market is there, favorably disposed toward our products, the more modern building methods and materials are fast being adopted, and it is the psychological moment to get in with our brick before the European makers get back into producing condition and start their ships toward the South American continent.

Military Lamp Presented to R. C. Penfield.

One important consideration should be noted in speaking of the market in Cuba for our brick. This is the tariff differential in our favor as against all other nations, which means that we are given the important advantage of a substantial reduction in the tariff below that which applies to all other countries. This, in itself, almost puts our brick exporters to Cuba beyond the reach of competition, and throws open this wide field to our brick producers. In the fiscal year ended on June 30, last, we sold in Cuba brick valued at $378,000, and it is predicted that our sales in these lines there for the present fiscal year (ending June 30, 1920) will far exceed this amount and will probably reach $500,000 in that country alone.

A REMARKABLE WAR SOUVENIR

A Unique Military Lamp Presented to R. C. Penfield.

A SOUVENIR of the war which is both unique and artistic, was recently presented to R. C. Penfield, president of the American Clay Machinery Company, as a token of appreciation of his efforts in the manufacture of munitions and in supplying material and equipment for the use of the United States Shipping Board Emergency Fleet Corporation. The souvenir is in the form of a military lamp the central part of which is made from a three-pound shell, the base being part of the powder container. On the brass part of the shell a United States volunteer has hammered a patriotic design. The idea of the military lamp was conceived by the young man and the work was perfected while he was still in service.

Big U. S. Naval Gun in Action.

U. S. Marines Enjoying an Idle Hour.

Our readers will be pleased to know that the American organization had the record of making some of the best munitions that entered into the war. Indeed the American company was one of the four or five concerns in the United States capable of turning out the large 14-inch armor piercing shells and other large shells which were used with disastrous effect upon the German forces. It is claimed that the only big guns from the United States which really got into service in the war used these shells which were fired from big naval guns mounted on railway cars which enabled them to reach the front.

The accompanying photographs show these big guns on the French front firing shells made in Bucyrus by the American Company.

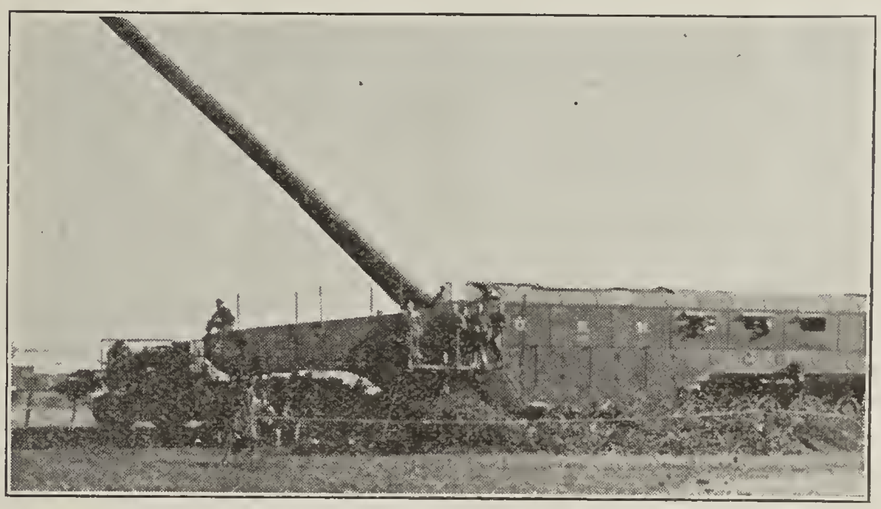
Mr. Penfield not only made large quantities of high class munitions but he also rendered valuable service to the U. S. Shipping Board as is attested by the accompanying letter from Edward Hurley. Mr. Penfield and his associates may well be very proud of the record made during war times, in the service of the Nation.

United States Shipping Board.
Washington, July twenty-sixth, 1919.

Mr. R. C. Penfield, Pres.,
American Clay Machinery Corp.,
Bucyrus, Ohio.

My dear Mr. Penfield:

Your patriotic efforts in supplying material and equipment for the use of the United States Shipping Board Emergency Fleet Corporation during the recent crisis were most helpful to our Government in aiding in the winning of the war and as I am leaving the Shipping Board on July 31st, I wish to take this opportunity to express to you my sincere appreciation for your endeavors and support in carrying out our ship building program for war purposes as well as the work you are now doing in furnishing equipment for our ships to establish an American Merchant Marine.



One of Uncle Sam's Big Guns Near the War Front.

I shall always remember my pleasant association with you.

Wishing you continuous success, believe me,

Yours very truly,
EDWARD HURLEY,
Chairman.

FIRE TESTS OF CONCRETE COLUMNS.

In the tests recently conducted by the Bureau of Standards on Concrete Columns it was found that concrete made from the so-called Cow Bay gravel, a mixed gravel containing a large portion of granite and Gneiss pebbles, and columns made from pure quartz gravel, gave results not quite so good as the columns made from Pittsburgh gravel previously tested. In the recent column test the concrete spalled so badly early in the fire test that a large part of the protecting covering after breaking up into slabs fell away from the column, exposing the steel and the load-bearing concrete to the fire. These columns failed under their working load before the completion of the four-hour fire test.

Columns in which the coarse aggregate was trap rock showed no tendency to spall or crack seriously and retained more than half of their original strength, as determined by load tests made while the columns were at maximum temperatures at the end of the four-hour fire test. Blast furnace slag also made a good showing similar to that of trap rock.

OFFICIAL ANNOUNCEMENT.

Thirty-Fourth Annual Convention of the National Brick Manufacturers' Association to Be Held at Columbus, Ohio, February 16 to 21, 1920.

Joint Convention to Be Held With the Common Brick Manufacturers' Association of America and Other Affiliated Organizations.

A GREAT EDUCATIONAL CENTER is surely an ideal place for a meeting of an educational organization. Such a place is Columbus, and such an organization is the National Brick Manufacturers' Association. So it is peculiarly fitting for the thirty-fourth annual convention of the N. B. M. A., the "daddy of all clay organizations," to be held in Columbus, Ohio, the third week in February, 1920.

Columbus is, too, a great commercial and industrial center. Being the capital of the State, makes it a great social and political center. The latter point is made apparent by the accompanying letter of invitation from the chief executive of the State, Governor James W. Cox, who will extend a personal welcome to the N. B. M. A. during the convention. The worthy municipal executive, Mayor George J. Karb, also extends a cordial invitation, in which he is joined by the local clayworkers and educators, all of whom will gladly contribute to the success of the convention.

Columbus a Great Convention City.

These facts, coupled with the splendid facilities of Columbus for the entertainment of visitors, make it a very desirable place of meeting for the N. B. M. A. and its affiliated organizations. This will be the third N. B. M. A. convention held in Columbus. The first was in February, 1899, and the second in February, 1908. Since the latter date the city has grown wonderfully. Among its recent achievements is a new Athletic Club, which ranks among the finest in the land, and a fine new hotel, the Deshler, a model modern hostelry, unsurpassed in equipment for the comfort and convenience of the traveling public.

Columbus is the home of the pioneer American School for Clayworkers, which, together with the Department of Ceramics at the Ohio State University, makes that great institution of learning of particular interest to all clayworkers.

In view of all these advantages offered by the Buckeye capital, it has been selected for the thirty-fourth annual convention to be held at the Deshler Hotel, February 16 to 21, 1920, and all affiliated organizations are most cordially invited to meet there during that week. Ample accommodations will be provided, affording every desired facility in the way of meeting rooms, etc.

Hotel Deshler Headquarters.

The populariiy of the Hotel Deshler among tourists is proof of excellent service and equipment. It was erected and outfitted at a cost exceeding $2,000,000, and its spaciousness, modernity, elegance and comfort aid in the entertainment of the public. The entire second floor of this hotel is so architecturally arranged that it may be used as one harmonious whole in entertainment of conventions, providing exhibit space, auditorium, committee rooms, etc. The Deshler is operated on the European plan, and the rates are reasonable, ranging from $2.50 up per guest, according to location, etc. Practically every guest room has a private bath and toilet. The minimum rate for a double room is $4.50. The dining room service is unsurpassed, and there is a quick service cafeteria and coffee shop that busy men find a great convenience. Naturally, the Deshler is very popular, and consequently early reservations are advised.

Hotel Deshler.

Meetings of Affiliated Organizations.

The Common Brick Manufacturers' Association will meet jointly with the N. B. M. A., holding board meetings, executive and open sessions Monday and Tuesday, as will the National Paving Brick Manufacturers' Association and the National Clay Machinery Association. The local sections of the American Ceramic Society, the common and face brick manufacturers and makers of drain tile, sewer pipe, hollow tile and terra cotta are invited to participate, thus insuring a representative gathering of clay products manufacturers.

Those desiring further information as to requisite of membership in the National Brick Manufacturers' Association, or any other detail of convention arrangements, are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
J. W. Robb, President.
Theo. A. Randall, Secretary.

ADVENTURES IN CLAYWORKNIG IN BRITAIN.

THE CONTINUAL reference to the shortage of bricks in the local and national newspapers has brought to the front a number of men and firms who have little or no knowledge of brickmaking and are not, indeed, interested in the technical side of the industry. Their one and only object is to make some arrangement with a brick manufacturing firm to purchase the works as a going concern, retaining the proprietor as manager or managing director. The works are then converted into a new company with a capital at least double that which was previously regarded as sufficient, the new shareholders being tempted with a prospect of preference shares bearing a high percentage, whilst the ordinary shares are retained by the company promoters.

To those brick manufacturers who are unaware of the methods of the company promoters who are taking an interest in the brick trade at present, it may seem a good opportunity to reap a reward for the troubles they have undergone in past years. Unless the greatest care is taken there will be far more trouble in the future than in the past.

Here are some probable difficulties, the avoidance of which can only be secured by the utmost care at the present time.

The purchase may be partly in cash, but in many cases it is chiefly in shares, and is therefore hardly to be regarded as a purchase at all. Rather it is to be considered that the existing proprietor invites other people to share in his profits or losses in return for a purely imaginary addition to the capital of the concern. For it must be remembered that the suggested increase in the capital can only be of value when the shares are sold for cash and at the full rate. To secure this, however, would probably take too long a time to suit the average company promoter, whose aim is sometimes to unload sufficient of the shares which he has given to him in return for his services as so to make a good bargain, after which he may "clear out."

The added capital, even if issued at par, will be of no value unless there is ample demand for the use of the capital in the production of bricks which will sell at a good profit. In one case it was estimated in a prospectus that there would be a profit of £2 per thousand bricks divisible for dividends —a figure which can scarcely be maintained for more than a very limited period, but typical of the statements which not infrequently find their way into the prospectus of new companies. It is true that the present state of the brick trade is such that it is almost impossible to predict the future, but he would indeed be a bold man who would, under such circumstances, estimate a profit so high as £3 per thousand.

The increased capital must, in some cases, largely be of the nature of "water" so far as shareholders are concerned, for even in the few cases where it is fully subscribed it cannot be seriously expected to pay a dividend of 10 per cent. continuously. The shares paid to the company promoter are almost wholly lost, as the requisite capital to carry on a sound business in a proper manner could usually be obtained at a much lower cost by other means. Consequently, the man or men in charge of the new company will soon find themselves faced with an almost impossible task, namely, the production of a profit on a capital double or treble that which they formerly possessed without adequate means for utilizing this capital in the way they anticipate.

Any brick manufacturer who can sell his works at a fancy figure in cash to any buyer, no matter how unscrupulous, should certainly do so at once, provided he can insure receiving cash down. If payment is made by a bill, he may find himself in possession of a useless piece of paper at the end of three months, and that in the meantime all that can be removed from the works has been sold whilst he receives none of the proceeds. If payment is to be made partly in shares, it will be necessary to look out for differences of opinion, especially if the vendor takes a seat as director on the new board.

Very few brick manufacturers with whom we are acquainted appear to realize the serious position of a director of a company. They suppose that, like a shareholder, a director's liability is limited to the amount of the shares in his name, but this is by no means the case. On the contrary, the directors have each certain duties to perform and the shareholders can call them to account for the proper performance of their obligations. There are many things in the management of a limited company which may not, perhaps be regarded legally as fraud, but irate and disappointed shareholders may make out a painfully good case of misrepresentation if the business of the company is not as prosperous as was anticipated, and the directors or such of them as are worth prosecuting may have to suffer accordingly.

STUDY THE OUTPUT COST RATIO.

ONE OF THE most important factors needing consideration by clayworkers is the relation between the amount of the output and the cost of production, as upon this relationship depends the efficiency of the works and the ability to withstand a run of poor business. Every manufacturer should know when it pays to shut down the plant rather than to run at a loss. The curtailing of production frequently means the increasing of cost per thousand to a point where profit ceases. Every plant can show its minimum production cost only when operated at its greatest efficiency. The only way a manufacturer can be certain of whether or not his product is being turned out at a profit is to have a thorough system for recording production costs daily. We do not believe in complicated bookkeeping methods, but we do believe in common sense records. The haphazard way of figuring profit and loss at the end of a month, quarter of a year, by a trial balance of the books is obsolete. A manufacturer should drive his business instead of letting it drive him. He cannot know how to drive unless he has the knowledge that can come from daily records focused into reports.

MEETING OF CINCINNATI FACE BRICK CLUB.

There was a meeting of the Cincinnati Face Brick Club on December 8, at the Chamber of Commerce to assist in the campaign to stimulate the use of face brick for building purposes. This is in accordance to the plans formulated at the recent convention of the Face Brick Association at French Lick Springs. The first feature of the campaign in this city will be a talk on the use of face brick by an expert of national reputation. The address will be made before the club in the near future. A special committee has been appointed to arrange for a brick exhibit and lectures on brick construction in connection with the "Build Your Own Home" Exposition, to be held in Music Hall from March 6 to 19, 1920.

CORRESPONDENCE.

THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Old Firm Takes New Name.

Editor The Clay-Worker:

Want to advise you that the Daphne Pottery Company of Daphne, Ala., is no more, as we have dismantled everything at Daphne, and moved same to a point on the M. & O. Railroad, sixteen miles north of Mobile, to a place we have named Randall, Ala.; as yet we have no mail service there, but hope to have later on. We are now operating under the name of the W. B. Patterson Clay Company, making common building brick, and after the cold season has passed, will make more or less pottery, as we have a fine deposit of good plastic clays suitable for a variety of wares.

We expect to install a dryer a little later and build four round down draft kilns, and will then be in good shape.

With best wishes for you and everyone interested in clay products, we are,

Very truly yours,

Mobile, Ala. W. B. PATTERSON CLAY CO.

Brick Man Travels Nearly 3,000 Miles by Auto.

Editor The Clay-Worker:

I am in the South for the winter, at least, with the Southern Clay Company, as superintendent of the Graves, Ala., plant, giving particular attention to their kilns and burning troubles.

Together with my family, I made the trip from our home in Calgary, Alta., Canada, to the plant here (2,856 miles) in our auto. Our experiences were many, from a four days snow storm tie-up at Great Falls, Mont., over dirt roads, gravel roads, no roads, stone roads, Illinois roads (the worst of all) cement roads, and other kinds of roads not yet named, to ferry boat rides. Strange as it may seem, we did not ride over a single mile of paving brick roads in the country, but of course did strike them in the towns and cities.

Of course, I don't want to miss a single copy of the Clay-Worker, so please change my address on your mailing list. With kindest regards, and wishing to be remembered to "Jim," I remain,

Yours very truly,

W. G. WORCESTER.

American Machinery Gives Satisfaction on English Brickyard.

Dear Mr. Randall:

How are you all now? Well and fit, I hope, and still smiling. It seems years since your little drop of "special" nearly choked me. I had a little holiday in September, sailing and fishing, but am back at the grindstone now. We received our Fate cutter the end of September. Inasmuch as it was shipped by the Fate company the 26th of June, it don't look like much Yankee hustle so far as the transportation was concerned. The cutter was in good order and started working straight off, without any trouble whatever. I am very much satisfied with it, and have ordered from the Fate Company a hollow tile machine which is to be shipped in December. I hope the freights have eased up by that time, as it cost nearly $200 to get the cutting table from Cleveland to Manchester.

With all respects to I. S. McCann, whose letter on shipping brick to England appeared in the September Clay-Worker, I hardly think there will be many brick shipped to England. By next spring, we will be wanting orders. The selling price at the kiln is now only $15 per 1,000. I think the U. S. A. might do a little better than allow $4.19 to the English pound, sterling. Hang it all, we let you send in here about 10,000 tin "Lizzies" per annum.

Our good friend H. Greville Montgomery, Editor of the British Clay-Worker stayed with us over-night recently, and he asked to be remembered to you.

Please remember me to all my Indianapolis friends, including of course, your family and your very amiable office force.

Sincerely yours,

Manchester, England. SIDNEY HIGGINS.

Arkansas Brick Manufacturer in Market for Supplies.

Editor The Clay-Worker:

We are in the market for one over-hung fourteen to sixteen foot induction fan complete. A good second hand fan will answer our purpose.

Also for a fuel oil storage tank with a capacity of fifty to one hundred thousand gallons.

Possibly some of The Clay-Worker's readers will be glad to quote us prices, delivered at Little Rock, Ark.

A 10,000,000 Brick Kiln Shed.

We are very busy, our four plants keep us going all the time. I am enclosing a snap shot of the kiln shed we are putting up at the Little Rock plant. It will be 1,400 feet long when finished and hold 10,000,000 brick, in addition to our kilns, which hold 6,500,000. Business is good, but we cannot get the cars to load the brick. The car situation gets worse with us all the time.

Expect to see you all at the convention in February.

Yours truly,

W. W. DICKINSON, JR.,

Arkansas Brick & Tile Co.

Tribute to A. R. Root.

Editor of the Clay-Worker:

Permit me to pay a slight tribute in your columns to the memory of our dear friend and charter member of the N. B. M. A., Mr. A. R. Root, who recently died in Philadelphia.

I believe that he was the only member besides yourself, who had an unbroken record of attendance at the annual conventions and his absence from the next one will be sorely felt. His life and character were clean and ennobling, his business dealings conducted with unfailing courtesy and squareness, and his unassuming disposition, with the gentleness of a woman, yet the strength and courage of a lion, won him a host of friends who will greatly miss him and sadly mourn his departure. The rising generation may well strive to emulate his example.

I count it a great privilege to have known him and enjoyed the blessing of his friendship during all these years and pray that our Heavenly Father may comfort and sustain his loved ones in this great bereavement.

Yours sincerely,
Birmingham, Ala. JNO. W. SIBLEY.

Wants Electrically Driven Transfer Cars.

Editor The Clay-Worker:

We desire to procure equipment to handle approximately 150,000 brick a day, and will appreciate information as to any firms equipped or provided with electrically driven transfer cars.

With best wishes,

Yours very truly,
H. H. STAFFORD, President,
Augusta, Ga. Georgia-Carolina Brick Co.

California Clayworker on Tour of Inspection.

Friend Randall:

Many thanks for the information in your letter which I received on my arrival at Chicago. As you know, the roofing tile business in the East is now practically limited to two concerns, the Ludowici, with headquarters in Chicago, and the Mound City Roofing Tile Company of St. Louis. I visited the latter plant on my way from California to Chicago and was very courteously received. I also visited the great plant of the Western Brick Company' at Danville, Ill. Frank W. Butterworth, the successful general manager of the large company, has made efficiency and system a science in his business. There are sixty-two kilns at this plant, and the output is about 6,500,000 brick every four weeks. This counts hollow tile on an equivalent tonnage basis.

From Chicago, I went to Bradford, Pa., where I spent a day inspecting the splendid plants of the Bradford Pressed Brick Company. Also visited the plant of the Kittanning Brick Co., where as you, no doubt, know they make a very fine grade of face brick.

Will probably see you at the American Face Brick Association convention at French Lick next week. Expect to visit a number of plants around Columbus, Ohio, en route to the convention.

With cordial regards, as ever,

Sincerely yours,
HOWARD FROST.

THE AMERICAN CERAMIC SOCIETY'S PROGRAM.

Plans are progressing nicely for the Annual Meeting of the American Ceramic Society at Philadelphia, February 23-26, 1920.

Headquarters will be at the Bellevue-Stratford Hotel, where rooms are available for general and sectional meetings, and where social functions will be held. Members of the Society are asked to make reservations early, as all hotels in Philadelphia are crowded in the winter months.

Mr. Frederick Stanger, Manager of the Enterprise White Clay Company, is general chairman of the local committee. Subcommittees have been appointed to assist him. Mr. Wm. E. Saunders, of the United Gas Improvement Company, is chairman of the committee on the banquet. Mr. W. H. Fulweiler, of the same company has charge of arrangements for a smoker or "Section Q". Mr. D. H. Applegate, Jr., of the Philadelphia Textile Machinery Company, is chairman of the committee on hotel reservations. Mr. C. A. Hall, of the Pennsylvania Salt Manufacturing Company, is making arrangements for the meetings, equipment, etc. Mr. George F. Pettinos, of Pettinos Brothers, has charge of the Information Bureau, and Mr. John P. Goheen, of the Brown Instrument Company, is arranging for trips of interest to be taken after the close of the meeting.

THE TRADE QUIZ BOX.

Many readers of The Clay-Worker are wont to ask the editor for information on various matters pertaining to the brick and tile business. Usually such questions are answered by letter on the theory that the party asking the question is the only one particularly concerned, but many times the queries are of a general character and cover points in the trade in which the general reader may be interested, so we again inaugurate a Trade Quiz Box. Under this head, questions and answers will be given and any reader who can give further particulars in response to any particular query, or desires information on any phase of the business, is invited to make use of this department.

QUESTION: Which is the best method of water smoking dry brick, where brick are set direct from the machine in kiln, oil being used for fuel to burn, and wood is not available for drying off?

Answer: We have water-smoked dry press bricks with steam sprayed oil, and to our surprise there was no trouble with condensation, no rottenness of the product in consequence of steaming, nor were there any streaked edges. The chief difficulty was in keeping the fires low enough that the heat might not advance too rapidly and at the same time keep the burners alight.

There is, of course, a wide difference in water-smoking requirements for dry press bricks and a sucessful process in one locality might not succeed in another. Some dry pressed bricks can be safely water-smoked in three to four days and others require as long as three weeks.

If the oil were sprayed with air the chances of satisfactory water-smoking are much better. We can use oil successfully in small laboratory kilns and furnaces, so small that one of them could readily be put into a brick kiln furnace, and working along this line one could lay up a temporary brick box into which the oil could be sprayed as in a laboratory furnace and this box could be brought up to a temperature which would ignite the oil and maintain combustion without developing such a volume of heat as to injure the ware in the kiln. We have water-smoked with coke and with this fuel there is the same difficulty as with oil, namely, to keep a small fire. We made sheet iron cylinders, somewhat like a tinner's charcoal stove in which we could keep a small mass of coke burning without developing much heat in the kiln. These stoves were placed in the ash pits of the kiln furnaces. Later we substituted small loose brick boxes in which to burn the coke. The problem in burning the oil is much the same.

We must have a confined space in which to maintain an ignition temperature, and so small that even though it is red hot, the temperature in the kiln does not become excessive.

The objection to the coke is that the sulphur causes streaked edges in some products, but any product which could be water-smoked with coal, or oil containing sulphur, could be water-smoked with coke.

There are burners in which the oil is dripped into pans and the combustion takes place on the surface of the oil in the pans. We do not know whether such burners could be used in water-smoking, or not. They are pretty smoky and the chances are against their use.

CAREY P. ELLIS.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second-class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

Title registered, contents copyrighted.

THIRTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

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☞Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to

226 East Ohio St. T, A. RANDALL & CO. [Inc.], Indianapolis.

Vol. 72. DECEMBER, 1919. No. 6.

CURRENT COMMENT.

Merry Christmas.

* * *

Let us have peace, and make some good will.

* * *

Fuel efficiency is a mighty important factor right now in clayworking cost and economy.

* * *

Regardless of whether they are kept or not, good resolutions indicate a desire to do better.

* * *

Wanting things is a good tonic till you get too much of it in the system, then it poisons the disposition.

* * *

Brick stock piled up during the winter for the spring needs ought to be about as good as the proverbial "old wheat in the mill."

* * *

In casting over the outlook ahead we find ourselves longing for a hundred different and impressive ways in which to say, "Make More Brick," and "Use More Brick."

* * *

One plea The Clay-Worker wishes to put forth for the new year is this—Let us have rivalry among clay products offerings for place and favor, but cut out antagonism.

* * *

There is not only a lot of land that can be reclaimed by tile drainage, but it is one of the easiest reclamation projects to handle, and that should count for something too.

* * *

One trouble with the fellow who wants to maintain a reputation for plain speaking is, he thinks he must say something ugly to make plain speech, and there is often a lot of difference between plain speaking and ugly talk.

* * *

Folks now speak of it as the diluted dollar, but old E. Pluribus Unum is still mighty good company to keep.

* * *

One splendid way to find out more about machinery and its further possibilities is to ask the machinery men about it.

* * *

Another good word being worked to death these days by both writers and speakers is that three-cylinder thing "potential."

* * *

The inventory pencil and the adding machine will now take the center of the business stage for awhile and play a leading part.

* * *

In arithmetic one plus one equals two, but in business enterprise the answer is what the energy and ingenuity of the man concerned makes it.

* * *

In the business world authority and responsibility are inseparable, and the man who aspires to authority must shoulder some responsibility to go along with it.

* * *

Tyranny is an unwholesome thing that we have always fought against in this country, and it is no more welcome from the "poor" worker than it is from the "rich" capitalist.

* * *

Let us not only maintain a government by the people, but let's see that the government is respected, and that law and order reigns, that we may have peace, plenty and progress.

* * *

One of the good things we may expect to see come out of the present profit taxing system—regardless of the merits and demerits of the system itself—is a better valuation on clay properties, and on the clay and shale used up by the industry.

* * *

There are some bills before congress calculated to help promote building—by lessening the tax burden on mortgage loans, and by helping to finance with the Federal Loan Banks through building and loan associations. Let us encourage congress to make these into laws speedily.

THE CALL TO COLUMBUS

The name Columbus should naturally be associated in the mind of any good American with discovery. This in turn makes it peculiarly appropriate for the clayworkers to gather together at Columbus this year, because there has never been a period in the clayworking industry more promising for discovery. Not only has there been great research work in the past year or two, but conditions are such in the industry that today there is more need in the industry than ever before, there is need for new light on practically every branch of the industry from breaking down of raw material and mixing it to the burning in the kiln. The best way to get this light and new discoveries is to attend the annual convention which is to be held at Columbus, Ohio, the third week in February, 1920.

WHO DOMINATES THE N. B. M. A.

Do you want to know who it is that dominates the National Brick Manufacturers Association; determines its policies, and shapes its destinies? The answer is easy, and here it is: Those who come to the annual meetings and take an active part in the proceedings. The man who stays at home can benefit some from reading the reports of the annual convention, the papers and discussions. The same man though can benefit himself much more by attending and taking part in the proceedings himself. The man who stays away and complains about what is done and what is not done cannot benefit either himself or the association as he should, and the right thing is to come to the convention where every man has an equal right to his say so and can play his part in shaping the activities of the association. It is the men who come and take an active part who dominate the policies of the N. B. M. A. It could not be otherwise. So if you want to take a hand in helping to guide the destinies of this parent organization of the industry, attend the annual convention and take an active part in it. In that way you can not only help shape the activities but you can help yourself in your own business much more than by staying at home.

BETTER ACCOUNTING

One good result coming out of all this trouble about making profit and income tax returns is an order of better accounting in the industries. In the past quite a percentage of those making brick and tile have followed slip-shod methods in keeping an account of their business. This is one reason why brickmaking in the past has not yielded a fair profit. There should be an awakening to better accounting. While it calls for little more trouble and attention it does not cost more money in the end. It may seem to at first, but we now have adding machines and other special equipment to take the burden out of this work and reduce the chance of error. Also it brings so much better understanding of the business that it becomes a profitable investment instead of an accounting expense. Better accounting properly interpreted means better business methods and bigger profits.

"WHAT FUR MAKUM BRICK PRICE?"

As the Japanese school boy would probably say "what fur makum brick price." In everyday English one of the important questions before the trade is, what price should brick sell at and why? Plainly it is cost which will be the governing factor in most cases, and it will be from the cost basis that the selling prices will be determined. Whether they will be lower or higher than at present only time can tell. Present indications do not point toward any immediate decrease in cost. The important thing is, no matter what the cost involved may be, to get it counted and know that you have included it all before figuring the selling prices and possible profit margin. Also the cost figures for the year should carry a fair allowance for advertising and selling charges. What will constitute a fair allowance for this is a matter that is open for some debate. There is not much room for debate however, on the question as a whole. In the past brick makers have not counted much on and set aside a sufficient sum for advertising and selling. From now on this should be included in cost estimating, for advertising and selling are essential features for a successful business.

HAVE A SALES DEPARTMENT.

The science of modern business management generally divides an industrial institution into half a dozen departments. These include administrative, financial, engineering, planning, manufacturing, sales department, and accounting department. In the larger industries the group is enlarged or subdivisions are made so that even more departments result as distinct organizations. The practice in many a good business, however, is to group the administrative, the financial, sales and accounting, and to quite an extent the engineering or planning department in one general group interlocked together in more or less confusion. Where this grouping exists in the clayworking industry, what we need to get out of it and set forth as one department is in connection with the sales department. There has never been enough progressive and persistent effort at salesmanship, and there never will be so long as salesmanship or the selling department is bunched in and grouped with other departments. For the aggressive boosting of the product an industry must have a separate and distinct sales department, the business of which is to look after advertising and to promote sales both present and prospective. This can only be done effectively and in a broadgaged way when the department is freed from other duties and responsibilities that it may concentrate upon the one problem of selling. One of the great needs of the brick plant and clayworking today is to set up a distinct and worth while sales department.

WATER POWER DEVELOPMENT.

While many of the big ideas about water power development in this country are still mere dreams, and while a share of them never will be realized upon, still and nevertheless we are making some progress in water power development as is shown by some recent statistics of the shipments of water wheels during 1918. The figures show that enough water wheels were sold for domestic use to produce 387,843 H. P. and there was exported enough to produce 108,376 H. P. Unquestionably some of the new wheels were to replace old ones, but even at that it shows that we are gradually adding to the total of power production in this country from water.

BRICKLAYING LITERATURE.

One of the plainly evident needs of the day is more literature on the subject of brick laying and brick contracting followed by wide and free distribution of it. This is important not only to help train young men in the art of brick laying, but it should also serve the purpose of good propaganda to arouse more interest in the matter of brick building. What is especially needed is hand books or pamphlets on the A. B. C.'s of brick laying for those who want to learn something about it. There has been very little printed matter of this kind, people as a rule learning brick laying from working with some one already trained in the business.

Now, while training is essential to proficiency in work, literature in the form of hand books for guidance is also essential for proper training. We need such hand books not only for schools and special training classes but we need them for distribution to the general public.

OTHER CONVENTIONS OF INTEREST.

There are other conventions held during the winter aside from those of the clayworking industry itself which should be of interest to the majority of the clayworkers. The conventions specifically in mind are those of the retail lumber dealers of the country. These meet in annual gatherings during the winter season, usually of state and regional associations. There is a national association of retail lumber dealers but this is made up in a large measure of the dealers in the larger cities who are more exclusively lumbermen and not so much interested in clay products as the dealers in the smaller cities and towns represented in the state and regional gatherings. It is the state and regional associations that the clayworking industry should get in touch with, to the end that these same dealers may be enlisted to handle and help push clay products. The products which they handle include brick, hollow block, drain tile, sewer pipe, flue lining, fire brick and roofing tile. There are between 20,000 and 25,000 dealers who should be interested in these products and making them a more important item in their business. The clayworkers should make it their business to not only attend these conventions but to arrange for speakers to tell the dealers about clay products and the chances to do business at a profit in them. This will not only be a step in the right direction for developing broader trade channels for clay products, but it will help in the campaign of boosting for better building by using burned clay for building material.

RICKETSONS' COLORS FIND FAVOR IN TEXAS.

Showing the strength of colors of the Ricketson Mineral Paint Works, Milwaukee, Wis., Mr. J. T. Booth, Beaumont, Texas, writes that he has been manufacturing cement tile and trimmings for five years, and has used several kinds of red color, but has found none that would hold out in cement shingles like the Ricketson Fadeless Mortar colors.

FIRE DAMAGES ARKANSAS PLANT.

Fire at the plant of the Arkansas Brick and Tile Company, Little Rock, Ark., November 29, caused a loss estimated at several thousand dollars. One end of a dry kiln shed, 100 by 50 feet in size, and three or four carloads of brick were burned. The fire was extinguished by the workmen with the use of the plant's hose and water supply. It is supposed the shed caught fire from the burning of brick in the kiln.

ANNUAL CONVENTION OF POTTERY MANUFACTURERS

The forty-first annual meeting of the United States Potters' Association, comprised of all pottery manufacturers in the country, will be held in the Hotel Astor, New York, January 6 and 7, according to announcement sent out by Secretary Charles F. Goodwin of East Liverpool, Ohio.

About 100 pottery manufacturers will attend. The first day will be taken up with routine business. Officers will be elected on the second day. The convention will close with a banquet.

B. C. Sims, of East Liverpool, who is interested in the C. C. Thompson Co., is the only living charter member of the association.

EXTRA! EXTRA!! EXTRA!!!

Santa Claus Strikes for a Six-Hour Day.

The foregoing startling announcement is the headliner in the current Book of Smiles, which brings the usual full measure of smiles. Apropos of present industrial conditions, the editor of Smiles remarks: "It is about time for the poor old public to form a 'one big union' and get its share." So mote it be. One way for the brickmaker to get his share and meet the big demand for brick, which is here, is to double the capacity of the plant, as the Baltimore Brick Co., of Baltimore, Md., is doing, by putting in another Standard dryer, after many years' satisfactory experience with the Standard Natural Draft steam dryer. (See ad on page 508.)

LIFE'S TRAGEDIES.

She rent the air with piercing note;
She found a hair upon his coat.
Her poor heart bled with grave concern;
The hair was red and wasn't hern."

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FIRE BRICK MAN BOOMED FOR GOVERNOR OF MISSOURI.

At a banquet given by the Green Fire Brick Company, Mexico, Mo., for a large number of distinguished Missourians who first made a tour of the company plants, A. P. Green, president of the company was enthusiastically endorsed as a candidate for gubernatorial honors. The banquet was served in the immense drying room of the plant, which had been specially decorated for the occasion. The guests which numbered more than one hundred included such notables as Hon. Champ Clark, and Governor Gardner.

This company which claims to be third largest fire brick manufacturing firm in the United States, has a daily output of 150,000 nine inch fire brick, which are shipped to all points in the country. Salesmen not only from the United States, but Canada, Mexico and Cuba were guests at the banquet which was the social feature of a conference which had been in progress.

NORTH CAROLINA WANTS A DRAIN TILE PLANT.

The Drainage Division of the Agricultural Service Station at Raleigh, North Carolina, has sent out a call for help. They claim that one of the great needs of the state is a tile-drainage plant.

In talking with farmers, many have expressed the opinion that tile is too high in price, and that they would wait for it to get cheaper. In 1914 the cost of tile draining one acre of land in North Carolina with the common spacing of lines 100 feet apart was approximately $24. Today, in 1919, the cost of doing the same work is estimated at $40. Relatively speaking, however, the cost of tile drainage is no higher today than several years ago.

For the past two or three years none of the tile used in North Carolina has been produced within its borders. It has all been shipped in and the freight has added greatly to its cost. With a tile-drainage plant in the State the price of tile could be reduced about one-third, claims the Drainage Division. North Carolina is behind in tile drainage projects due, in part, to the fact that little or no drainage tiles are made within its borders. Many farmers do not use tile because they cannot get it at a reasonable price.

American No. 292 Press.

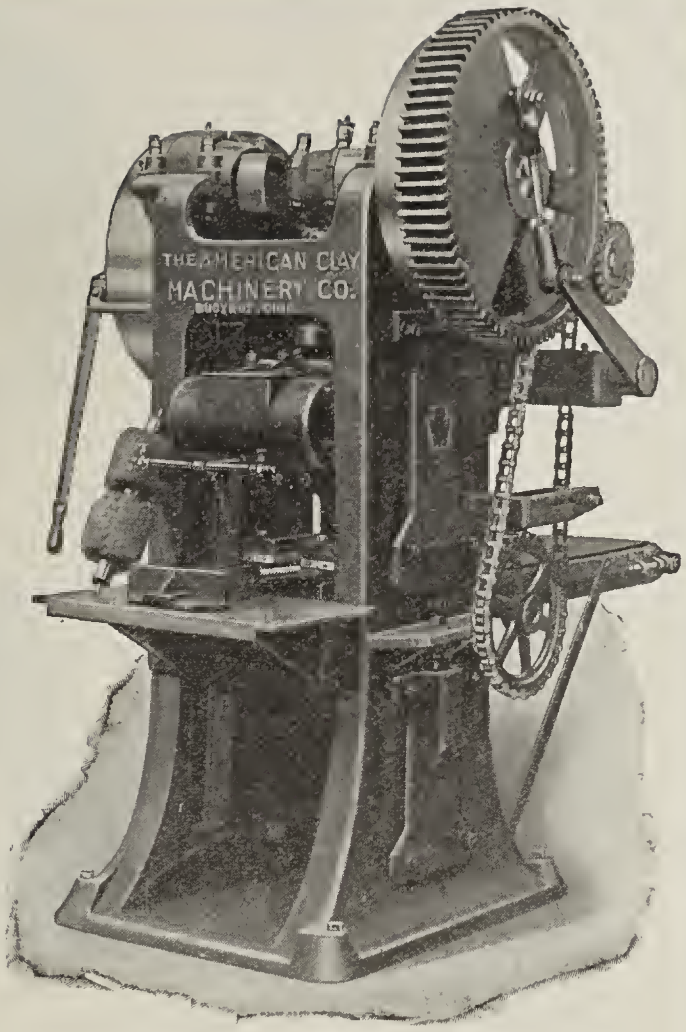
If you have need of a Repress at all you have need of a good one, and that is exactly what the American No. 292 is.

By design. By build. By performance. By reputation. By all these important features there is no better press on the market.

Its action is without loss of time and without rack or jar. It is thorough in its work. Ii is simple to operate. It is cheap to maintain and it is tireless when it comes to continued long hours.

While it is our desire to sell you this press it is certainly to your interest to buy it if you are looking for economical production.

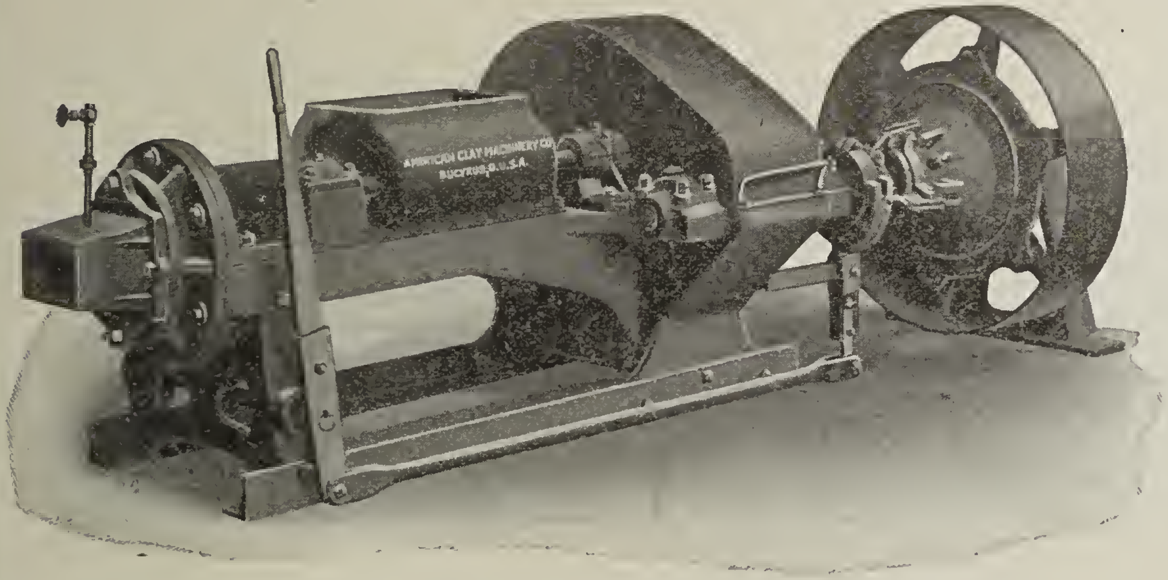
Get bulletin Free.



American No. 292 Press.

American No. 328 Auger Machine

There are a lot of larger auger machines—we and other people build 'em,—but there isnt a bigger value in a little machine anywhere on this big earth than the American No. 328. You dont need to believe this right off the bat but you can prove it to your own satisfaction and profit by an investigation. First get a free specification sheet. Then wise up on how its built. Then get the opinion of those using the 328. Then draw your own conclusions. Its to your interest to do this.



The American No. 328 Auger Machine.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

BUILT RIGHT
RUN RIGHT

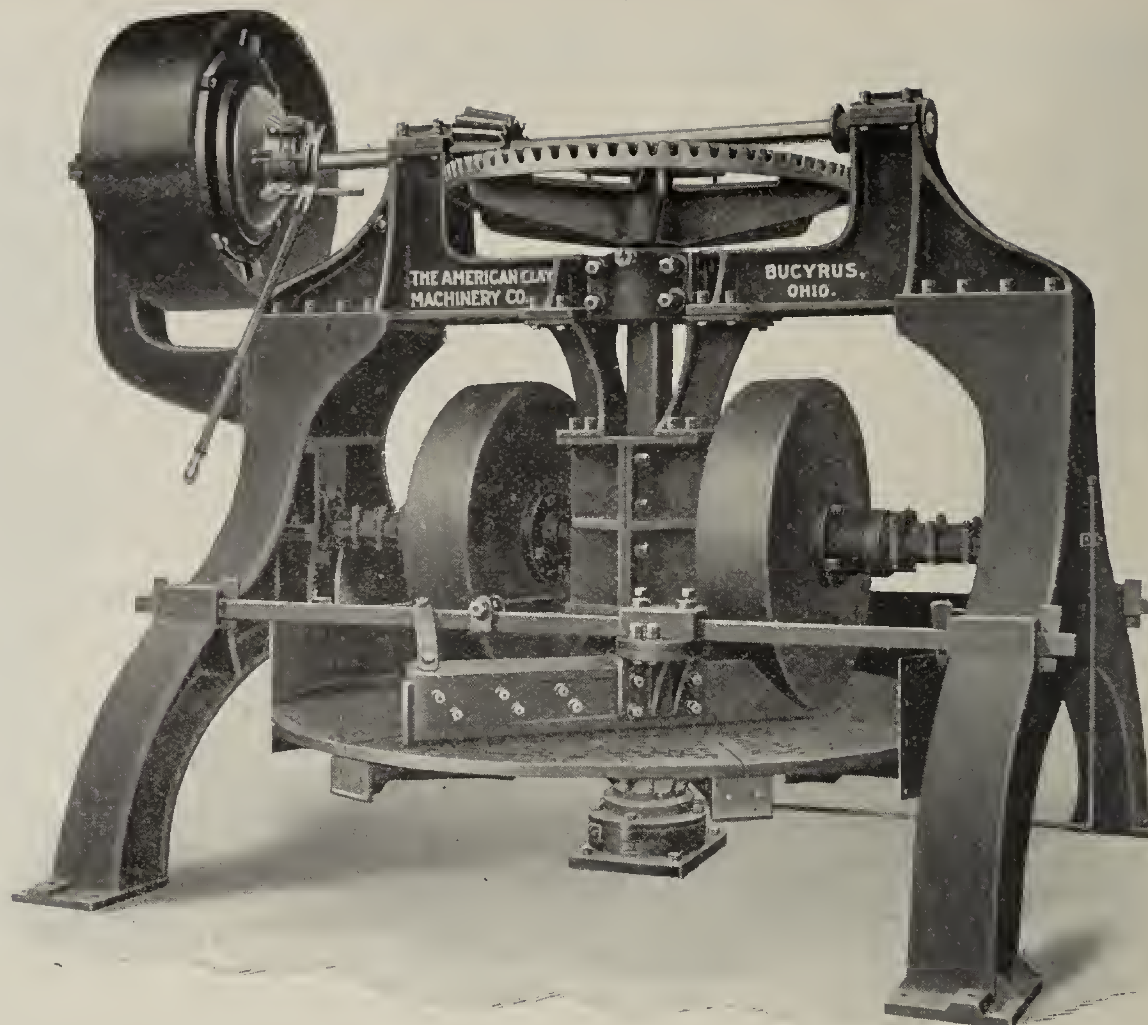
A Production Pan.

If its production you want and a production that is big in proportion to its cost, you will get it with the American Nine Foot Dry Pan.

Others are more than satisfied with it. They say it is the greatest producer at the least cost of any pan they ever saw.

It costs you nothing to get a description in detail of this pan. If you want it to work for you we will sell it to you. If you dont want it there is no harm done.

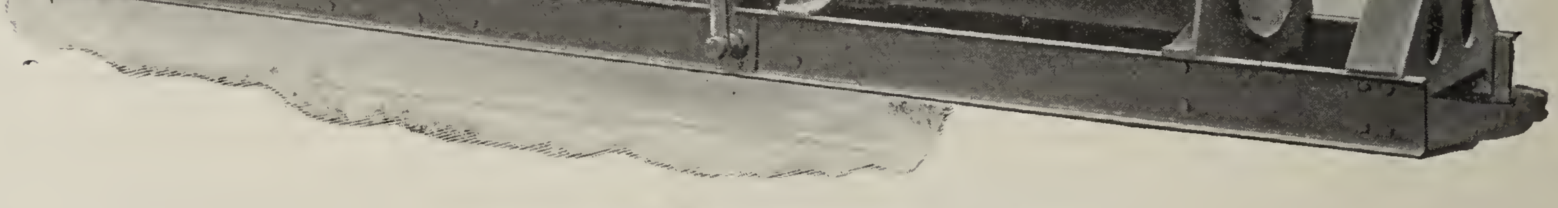
At least get posted on it. Bulletin free.



American 9ft. Dry Pan.

American No. 304 Pug Mill.

Never was there any Pug Mills that would compare with the easy running, low up-keep-cost, over production Pug Mill of the American Line. This No. 304 is a fair sample and if you will get our free specification sheet you'll see why it produces.

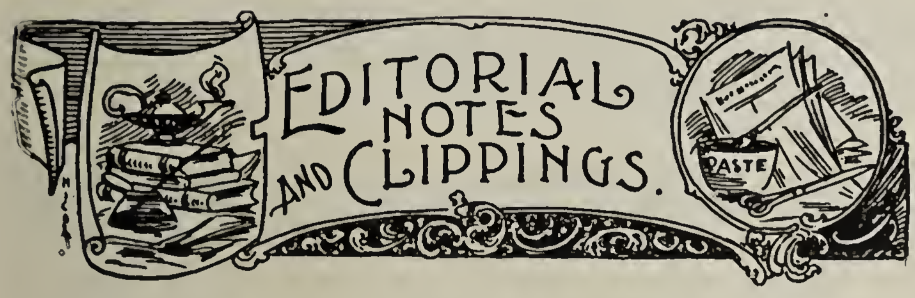


American No. 304 Pug Mill.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

BUILT RIGHT
RUN RIGHT



EDITORIAL NOTES AND CLIPPINGS.

Hugger Bros., Bell building, Montgomery, Ala., is in the market for roofing tile machinery.

Charles A. Powers, of Jacksonville, Fla., Box 782, would like prices of second hand dry press brick machinery.

W. D. Coggeshall, of Darlington, S. C., wants prices and information relative to brick yard equipments, including boilers, engines, etc.

H. E. Delmas, of Moss Point, Miss., contemplates going into the brickmaking business and would like prices of machinery for a small plant.

W. E. Davis, a prominent brick manufacturer of Livingston, Mont., was stricken by apoplexy at his plant November 28, and died before anyone could get to him.

The Norfolk (Va.) Pressed Brick Company has increased its capital stock from $10,000 to $25,000. W. A. Rountree is president and J. C. Smith, secretary of the company.

The new terra cotta plant at Carbondale, Ill., started operations December 1. C. B. Gauthier is superintendent of the plant, which gives employment to eighty to one hundred workmen.

The American Ball Clay Company was recently incorporated at Philadelphia, Pa., for the purpose of mining clay and other minerals. The capital stock of the company is given as $500,000.

The Pointdexter Brick Company has been incorporated at Elkin, N. C., with an authorized capital stock of $40,000. R. L. Pointdexter, J. W. Ring, A. Chatham, Jr., and J. F. Harden all of Elkin, are interested.

The plant of the Coffeyville Brick Co., at Collinsville, Okla., is to be enlarged to meet the constantly growing demand for their product. The company's plant at Coffeyville, Kansas is running to full capacity.

The plant of the Universal Clay Products Co., of Sandusky, Ohio, was started the middle of November. The company is manufacturing porcelain insulators and has orders enough on hand to keep the plant running full handed for more than a year.

The Independent Brick Co., of Augusta, Ga., has been reorganized, and will enlarge the plant to increase the capacity to 150,000 brick per day. They will install the Boss drying and burning system. Edward Cox is president and Nelson Benton, vice-president of the company.

William G. Clothier, president and general manager of the Jarden Brick Co., Philadelphia, Pa., died at his home in that city, December first as a result of kidney trouble from which he has suffered for some time. Mr. Clothier was one of the pioneers in the brick business in the Quaker City, and leaves a host of friends.

The George M. Norwood Brick Co., of Goldsboro, N. C., has been formed for the manufacture of brick with plants located at Cunnock, Lillington and Selma, N. C. These plants have heretofore been operated under the names of the Cunnock Brick Co., the Selma Brick Co., and the Fuquay Brick, and will continue to be run under the same firm names with the exception of the latter, which will be known as the Lillington Brick Co.

At a dinner and meeting of the stockholders of the Hazelton Brick Company, Hazelton, Pa., December 1, it was decided to increase the output of the local plant one-third. The local industry now has orders for 3,300,000 bricks. The expense of the equipment necessary to increase the output about 10,000 bricks per day will be between $30,000 and $35,000. The new output will be about $35,000 daily. The stockholders voted to erect two new kilns, install a new rock crusher, several new steam drills, a new electric truck to haul the brick from the kilns to the cars, a new delivery truck for local work, and a number of other improvements.

The Westpoint Tile Company is planning the erection of a dryer at its plant at Westpoint, Miss., and the installation of a shovel for getting out clay.

The Delaware Clay Products Co., of Wilmington, Del., has been incorporated with $50,000 capital stock, by T. L. Croteau, P. B. Drew, H. E. Knox and others.

Fire believed to have originated from an overheated kiln destroyed part of the Kenilworth Tile Co.'s plant, Newell, W. Va., November 28. The damage is estimated at $3,000.

The many friends of Edward C. Stover, of the Trenton Potteries Company, N. J., will be pleased to know that he is able to be about again after his illness in November, which threatened for a time to be serious.

The Johnson City (Tenn.) Shale Brick Corp. has been organized with $200,000 capital stock. The company, of which George W. Hardin is President, and John W. Reagan, superintendent and general manager, will erect a plant of 50,000 daily capacity.

The new plant of the Citadel Brick & Paving Block Co., of Quebec, Canada, is fast nearing completion. The plant is located at Bois Chatel, near Montmorency Falls, and will be the "last word" in modern equipment and drying and burning facilities, with a daily capacity of 100,000 brick.

By the merging of the George S. Good Fire Brick Co., Clearfield Clay Working Co., and the Clearfield County Mining Co., with a capital of $1,155,000, the Crescent Refractories Co., Lock Haven, Pa., has been formed. The officers are: President, A. P. Perley, Williamsport; H. T. Janney, Clarence L. Peaslee and J. B. Graham, Williamsport; and J. M. McKinney, Curwensville.

Fire of unknown origin caused an estimated loss of $1,000 to the office equipment of the Glen View Brick Company, at Glen View, W. Va., recently. The blaze, which originated in a frame building adjacent to the office of the plant, swept into the brick building used by the company as an office. No water pressure was obtainable and it was necessary for firemen to fight the blaze with bucket lines.

The Electrical Refractories Company has been organized to take over the plant and holdings of the Novelty Clay Forming Company at Newell, Ohio. The company will manufacture, buy, sell and deal in electrical porcelain and clay products. The reorganization is for the purpose of accommodating the rapid growth of the business. The company specializes in refractories and electrical porcelains which are used in electrical ranges, furnaces and gas heating stoves.

Unable to meet the demands placed upon its steadily growing business with its present equipment, the Greenpoint Fire Brick Company of Brooklyn, N. Y., announces that it has been forced to expand its facilities, resulting in its recently completed warehouses for the necessary surplus of fire brick materials to meet the increased demands. Arrangements have just been concluded whereby the most exacting requirements for refractories can be met and prompt deliveries made in New York city, from its most complete stock of boiler arches and jambs, side wall and bridge wall blocks and fire clay.

Announcement has been made by C. Carson Green of the Monmouth, Ill., Clay Manufacturing Company that work of rehabilitating the plant of the company will be started at once and that the concern will commence again to manufacture sewer pipe on the first day of February. Contracts have been let for two new power elevators and two new kilns. The company also let a contract for the overhauling of the heating plant of the factory. The improvements, Mr. Green said, will cost between $40,000 and $50,000 and will place the plant in shape to begin a long run. In addition to the improvements mentioned a force of men will cover the entire plant and make improvements to floors, walls, windows and other things that have got out of shape during the long shutdown. It will require the greater part of the two months to make all the improvements planned and when the factory opens again it will be equipped with all modern conveniences. The company will manufacture the same staple line of sewer pipe that has been turned out by the concern in past years. During the war there was little public improvement attempted but since the cessation of hostilities contractors have flooded the company's offices with requests for prices.

G. C. Reiniger, M. R. Allen, James E. Rector, all of Asheville, N. C., are interested in the Asheville Shale Brick Co., recently incorporated wiht $150,000.

The Huntington Brick & Tile Company, of Huntington, W. Va., of which T. M. Davidson is president, will build a plant, which they will make fireproof throughout.

The Ohio Shale Brick & Tile Company of Cleveland, Ohio, has been incorporated with $40,000. C. A. Hagely, H. B. Hershey, N. A. Miller and G. J. Born are interested.

Options have been secured of sixty acres of clay land at Durand, Mich., by the L. C. Briggs Co., of Lansing, Mich., for the purpose of erecting a brick and tile plant, of 75,000 daily capacity.

Stockton-Gamble Co., of Jacksonville, Fla., has purchased the plant of Shepherd Bros. Brick Company at Columbus, Ga., and will manufacture Denison interlocking tile, in addition to common brick.

George O. Berry, has been making a number of improvements in his plant at Columbus, Ga., including the installation of a 150 horse-power boiler and the erection of round down draft kilns.

The American Vitrified Products Company, Pittsburgh, Pa., has declared a dividend of ½ per cent.—50c a share—on the common stock, payable to stock of record on December 10. This is the old American Sewer Pipe Company.

The Torchlight Brick Co., Torchlight, Ky., which was recently incorporated, now has plans well under way for the erection of a plant of 50,000 daily capacity. They will build a continuous tunnel kiln and a twelve track dryer. C. E. Stafford is president of the concern.

Three hundred employes of the Mason City Brick and Tile Company and the American Brick and Tile Company, of Mason City, Iowa, received their annual Christmas presents in the shape of bonuses November 29. The total amount of money to be paid out by the Denison Clay plant interests to the men was about $25,000. The reward is paid for continuous service. The men average from $80 to $100 each.

For the first time since the United States got into the war, the plant of the New England Brick Company, at Mechanicsville, N. Y., has been able to run to capacity for some months. For a while it was feared the coal shortage would stop operations, but now that danger is past. The company has plenty of orders on the books to keep them running indefinitely, and that at prices that insure a balance on the right side of the ledger.

A charter was recently granted to the Stonecreek Brick Company, Stonecreek, Ohio, which is capitalized at $250,000. The incorporators are W. F. Delmuth, Port Washington; James Doney, New Philadelphia; D. C. Moomaw, Stonecreek, and Charles Beers, Dover, Ohio. The company has purchased 110 acres of land near Stonecreek, on which the small plant is located which has been operated by D. G. Moomaw for twenty-five years. A large plant will be erected for the manufacture of red and white face brick, which it is expected to have ready for operation in the spring.

The Limoges China Company, of Sebring, O., is undergoing a wonderful transformation by a large addition to the plant in addition to the three continuous kilns now well under way. One of these kilns as an experimental kiln is in operation and is a great success and so well pleased was the management of the plant with the work of the experimental kiln that two other continuous kilns will soon be completed. Two of the kilns are 302 feet in length and the third one, the decorating kiln, 185 feet in length. A building to cover these kilns will soon be completed with a circle truss roof. This building is 335 feet long by 132 feet wide.

George C. Prussing, retired brick manufacturer and builder, died November 28, at his home in Chicago, following an attack of heart trouble. Mr. Prussing was born in Germany seventy-three years ago, but had lived in Chicago since he was twelve years old. In 1868 he entered the building field as a contractor and brick manufacturer. He was president of the Illinois Brick Company from 1904 to 1906, vice president and director of the Purington Paving Brick Company of Galesburg, Ill., and a director of the La Salle Portland Cement Company. He retired from active business several years ago, but remained a director in the various companies until his holdings were taken over by the government under the alien property act. He was a life member of the Chicago Athletic Association and of the Builders' Club.

The Wagoner Dry Press Brick Mfg. Co., has been organized at Wilmington, Del., to manufacture building brick, fire brick, etc. The company is capitalized at $75,000.

The Acme Clay Products Company of Detroit, Mich., has been incorporated with an authorized capital stock of $20,000, all of which has been subscribed and paid in cash.

There is a movement on foot to overhaul and remodel the plant of the McCook Brick Co., at Lincoln, Neb., which has been idle for some time, and have it ready for operation by early spring.

The Carlson Brick & Tile Company has been incorporated at St. Louis, Mo., with $30,000 capital stock. F. A. Wheeler is to have charge of the construction of the plant which will be equipped throughout with modern machinery.

The Eureka Fire Brick Works, Mt. Braddock, Pa., which makes a specialty of difficult shapes in fire brick has opened a Pittsburgh office at 1507 First National Bank Building. E. L. Messler, president of the company and formerly a captain of engineers in France, is in charge of the office.

The Burton-Townsend Company of Zanesville, Ohio, is furnishing a three inch vertical fiber paving block for the new Y. M. C. A. building of Zanesville. The building is to cost $250,000, and is the object of great interest to building contractors and brick men, both because of the beauty and unique character of construction.

In the Raritan, N. J., districta ll those who can operate in cold weather and that is a considedable number, are doing so, employing all the help they can get, or can use profitably in getting out brick for the coming season. Demand has grown very rapidly of late and notwithstanding the cold weather these plants are getting out orders now on file.

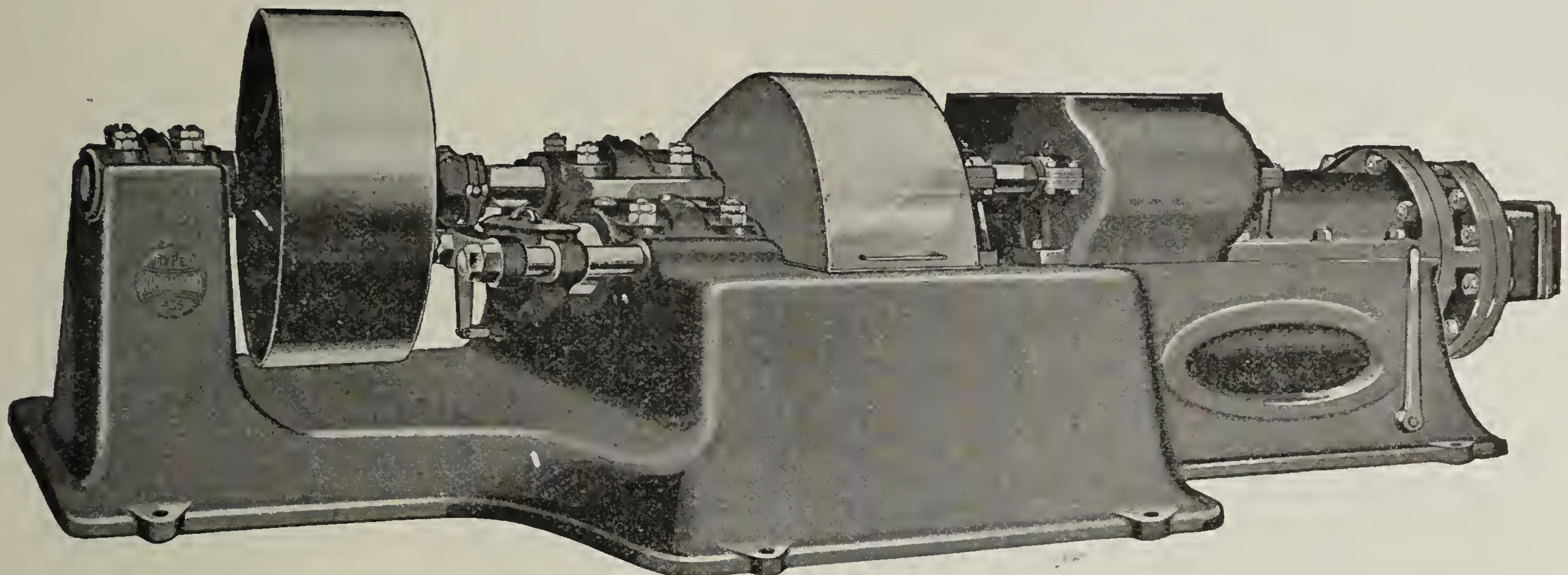
The J. C. Budding Co., of Lancaster, Pa., has purchased the Mountville (Pa.) face brick plant, and will at once make extensive improvements to same. In the near future, the company will erect a plant for the manufacture of common brick, which will give them a total capacity of 120,000 brick per day. The J. C. Budding Company is engaged in extensive building operations calling for large quantities of brick.

After being in operation for almost a score of years the Homestead Brick Company, Homestead, Pa., which was organized in 1901 and made the first brick on September 19 of that year will pass out and surrender its charter and will be known after the first of the year as the J. B. Coen Brick and Tile Works. Mr. Coen is the only stockholder of the old company now living. Mr. Coen has purchased all the stock and will operate the works himself after January 1, 1920.

Atlantic City is planning extensive additions to its hotel buildings and some of its public buildings during the coming year. For four years the city has been obliged to curtail its building operations. Now it is in position to take up the work again and the operations will be more extensive than they have been for a number of years previously. The situation is favorable and architects are now busy on plans for some of the more important buildings to be erected in 1920. Brick will be specified for a number of them and combinations of brick, hollow tile and other burned clay products will be used in others.

The Brick manufacturing plant of the International Brick Co. at El Paso, Texas, is the largest industrial enterprise owned and operated by union labor in the United States. The plant was built more than five years ago at a cost of $400,000. The plant has a daily output of 400 tons of clay products, which include brick, hollow building tile and drainage tile. It gives employment to 120 men and its annual payroll amounts to about $78,000. The industry has earned profits for the union. The International Brick Co. is composed of representatives of the International Bricklayers, Plasters and Mason's Union of America. A few years ago the members of this union conceived the idea of investing some of their surplus funds in a brick plant and El Paso was selected as the ideal location.

WHY THE NEW TYPE 435 MACHINE HAS CREATED SO MUCH INTEREST



TWO CASTINGS—TWO SHAFTS—TWO GEARS

Its one-piece frame, with the outboard bearing cast to the base, means that the shafting and gearing can never be thrown out of alignment.

The entire mechanism from the tip of the auger to the rear end of the driving shaft lies within this frame, there being no overhang at any point. This gives the strongest type of construction possible.

The gears, which are extra wide of face, run in oil, while the shafts are extra heavy throughout.

Brick and tile men who have seen this machine say that its construction embodies that which is most required in an Auger Machine, namely

MASSIVENESS AND SIMPLICITY

Detailed Information Gladly Furnished

International Clay Machinery Co.

DAYTON, OHIO

Mention The Clay-Worker.

Written for The Claw-Worker.

NOTES FROM DIXIE LAND.

THE FUEL RESTRICTIONS put in effect in the Southern States early in December put a bad crimp in all lines of industrial activity but it is hoped the result will be better all around. Without that factor the rainy weather in nearly all portions of the South retarded outdoor operations. There was little building except on work already started. Deliveries for ninety days had been very backward. The demand for sewer pipe, terra cotta products, roofing and to a certain extent for brick in small quantities has been good and prices firm. Architects, contractors and realty owners are planning a good deal of work in most of the Southern centers for the first part of 1920. In some of the cities and towns big work is under way, but slow progress is being made in its completion. As a whole the year has been good but residential work everywhere is backward and there is ample room for activity.

At Memphis the increase in the valuation of building permits issued in November, 1919, exceeded the same month last year by $157,880, as shown in the monthly report of Dan C. Newton, building inspector. The total valuation of building permits, November, 1918, was only $337,120, while the value of those issued November, 1919, was $495,000. Value of permits issued the first eleven months of 1919, was $6,512,200, while those for the corresponding period in 1918, were only $1,563,043, showing a gain of $4,952,157.

On December 1, through legislative enactment the thriving manufacturing and residential town Binghampton, Tenn., became a part of the city of Memphis. It has a population of about 4,000, is the seat of the American Car Works, large builders of freight cars, the Chickasaw Cooperage Co., several cotton oil industries, many stores and homes. The factories for the most part still remain outside. New South Memphis, a large manufacturing district, is still outside.

A programme of extensive additions and repairs to a number of the school buildings of Memphis was presented at the last meeting of the Board of Education. Action on the report was deferred until bids and estimates on the proposed additions could be secured by Walk C. Jones, architect for the board.

Louis Moss, of Jno. A. Denie's and Sons Co., 82 S. Front street, building material, brick and sewer pipe dealers, Memphis, has returned from a trip of several weeks to his old home in Chicago. Mr. Moss is very optimistic about 1920 construction in Memphis. He mentions that deliveries on material have been slow but autumn trade until a few weeks ago was very active.

There is considerable prospect of a large and modern hotel near the site of the Arlington Hotel, Main and Madison streets. Local capitalists are interested in this venture, it being near the heart of the north business section of the city.

The first brick used in the construction on an historic old college nearly a century ago was laid as the first brick of the big $500,000 Ayres Building at the University of Tennessee, Knoxville, a few days ago. The old college was razed to make room for the new building. Miss Blanche Bingham, of Bell-Buckle laid the brick with a trowel made from cedar and iron taken from the old college. She was handed a union card by workmen just before the ceremony.

Morrillton, Ark., has been selected as the site for the State College to be established by the Church of Christ. The city offered $100,000 as a bonus for the location of the school.

Crowley, La., reports good building activity. Among the large pieces of construction work there are seven-story bank building; the three-story K. of C. Building, the Marks Building; the Crowley Motor Co. Building, all of brick and located on Parkerson avenue.

At a special meeting of the City Council at Greenville, Miss., a few days ago the contract for a new city hall was awarded to D. J. Anderson, of Shaw, Miss. The contract price being $57,650. The plans by J. Rice Scott Co., architects, contemplate brick and stone structure.

The Ripley Hotel Co., at Ripley, Tenn., are erecting a handsome brick hotel and business block in that town. It is to be a four-story building. Mann and Gatling, of Mempris, architects. The hotel will be fire-proof with sixty rooms.

The Bullard Brick Co., Jackson, Miss., report good activity in the Capital City and neighboring points in that state and a prospect for much construction work the coming year. They are large operators on the manufacture of brick and clay products.

The Morrison Co., at Jackson, Miss., are building material dealers, sewer pipe, roofing and other material and have commodious and modern brick warehouses there.

The Currie-Finch Brick Co., at Jackson, Miss., is manufacturing a line of brick and are supplying the material on several structures in the central part of the state.

At New Orleans, the winter season is active. There is a good demand for residences, the city being 4,000 or 5,000 short in homes and many will be built in 1920. It is announced that the Pontchartrain Hotel will be built on Baronne street and will be a commodious structure of several hundred rooms. Numerous old buildings are being removed in the central business part of New Orleans to permit of modern construction work. There is a row of buildings being removed on Carondelet street to make room for the new Hibernia Bank and office building which will be the tallest skyscraper in the city. The Whitney Central Bank Building is erecting a large addition. The Times-Picayune has begun work on a new building for their newspaper plant on Camp street, adjacent to the Metropolitan Building, and near LaFayette Square and the post office.

The various brick and material dealers at New Orleans report trade good on sewer pipe, fire brick, terra cotta and other products but in some instances deliveries very indifferent for some time.

Allen Tupper, 627 S. Peters St., New Orleans, one of the veteran dealers of the Crescent City, was visited recently by The Clay-Worker scribe. He handles fire brick, sewer pipe, terra cotta and a wide range of products. He reports considerable winter work but a better prospect for spring.

J. Watts Kearny and Sons, 514-524 S. Peters street, are also active material dealers at New Orleans and their warehouses and sales department are very commodious and modern.

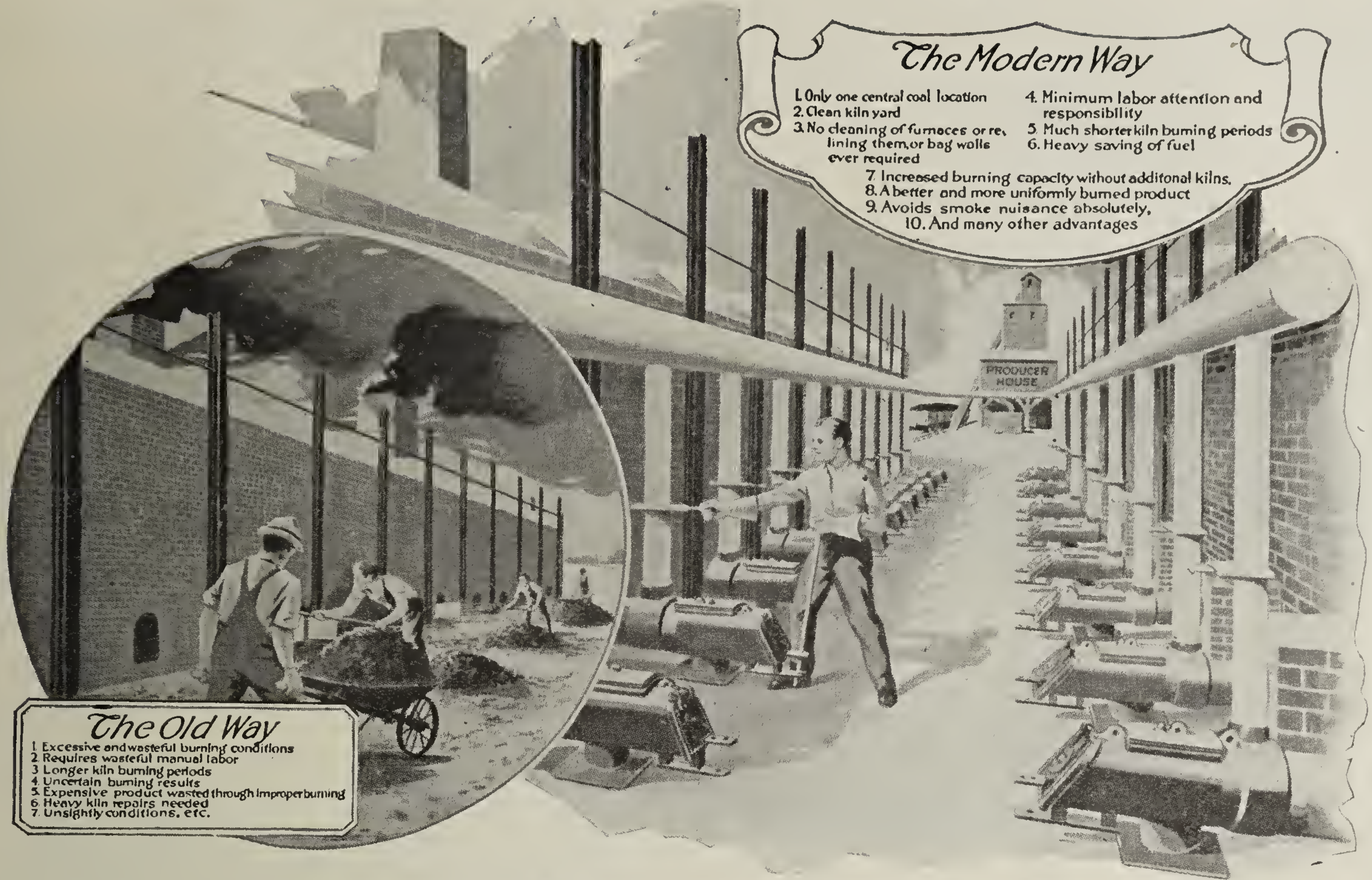
Jahncke Service, Inc., 814 Howard street, are quite active at New Orleans and during the present season have supplied material for some very modern structures. They have pretty show rooms, boat facilities and are at the front in Gulf State building material field.

Salmen Brick and Lumber Co., Ltd., Whitney Building, have brick works at Slidell and manufacture and handle a big line of brick and clay products in and around New Orleans and ship extensively. Fred Salmen is the energetic manager of the New Orleans office.

Michel Lumber and Brick Co., Claiborne street, also have an active place in the Crescent City. DIXIE.

THE CANDIAN CONVENTION.

As previously announced in The Clay-Worker, Toronto, Canada, will be the mecca for the Canadian clayworkers January 20, 21 and 22, 1920, when the annual convention of the National Canadian Association of Clayworkers will be held. A large attendance is anticipated. For complete program address Gordon C. Keith, Secretary, 32 Colbourne street, Toronto, Ontario, Canada. Brick and tile manufacturers of the United States are cordially invited to participate.



The Modern Way

1. Only one central coal location
2. Clean kiln yard
3. No cleaning of furnaces or relining them, or bag walls ever required
4. Minimum labor attention and responsibility
5. Much shorter kiln burning periods
6. Heavy saving of fuel
7. Increased burning capacity without additonal kilns.
8. A better and more uniformly burned product
9. Avoids smoke nuisance absolutely,
10. And many other advantages

The Old Way

1. Excessive and wasteful burning conditions
2. Requires wasteful manual labor
3. Longer kiln burning periods
4. Uncertain burning results
5. Expensive product wasted through improper burning
6. Heavy kiln repairs needed
7. Unsightly conditions, etc.

THE DAY OF FIRING KILNS BY HAND IS PAST

Hand firing kilns in most clay plants is tremendously wasteful. You are dependent on human element by hand firing—that means longer time than necessary. It is also impossible to get complete combustion by hand firing, and this results in a big percentage of fuel waste; besides, hand fired furnaces require many men where the plant is reasonably large, which are high priced and hard to get. Both of these problems and many others, too, are solved completely by the

UNDERWOOD PRODUCER GAS SYSTEM

(Patented)

This highly efficient patented equipment puts an end to wasted fuel by getting the very last unit of heat out of each ton of coal. It saves as high as 30 to 40 per cent. of coal, and similarly in labor in comparison with hand fired methods.

Our Gas System saves fuel because of its distinctive patented construction, insures completeness of combustion. It puts the maximum of generated heat in the kiln, thereby saving a big percentage of the heat energy that in hand fired furnaces is wasted in many different ways. Our Gas System cuts the cost of fuel requirements in another way by reducing from 40 to 50 per cent. of the time required for water smoking and burning, and it eliminates the smoke problem entirely.

The degree to which our Gas System saves labor is demonstrated by the fact that the coal can be brought from the railroad cars direct to the gas producer platform automatically, thus not only eliminating man-power, but also horses, carts, trucks, etc. Moreover, one man per shift can look after the burning of a dozen kilns and do it far better than six or seven men by hand firing.

Our Gas System reduces kiln investment when a greater burning capacity is desired or required, for it will accomplish with six kilns that which requires eight kilns when hand fired, and at the same time prolongs the life of the kilns indefinitely since furnaces do not burn out, bag walls are not melted down, crowns are not wrecked, there are no furnace irons to burn out, no furnaces to clean. Our Gas System has plenty of reserve capacity. It requires no auxiliary draft equipment. It is a time tested device that is already saving money for scores of well-known concerns, and has proven beyond any doubt the most profitable piece of equipment ever installed in a clay plant.

Peace did not end the labor or transportation problems by far. Coal must be conserved, and the labor end controlled, so take the step now that will help insure maximum efficiency in your plant, and send for full facts about the Underwood Producer Gas System. We can save you money—let us show you how.

The Manufacturers Equipment Co.

Dayton, Ohio, U. S. A.

Drain Tile Manufacturers

Help The Farmer
With His Tiling

One Day's Work of Ditching Machine

YOU can sell more tile and have them laid properly, thus assuring absolute satisfaction and at the same time make profits by operating a ditching machine.

WHEREVER there is a tiling machine increased demand for tile is found.

A TILE manufacturer states he makes more profit from his tiling machine than he does from his tile. He owns two plants and operates several Buckeyes. He is going to order another machine soon. He has no trouble getting contracts and uses up more tile than he can produce.

A Perfect Trench at One Cut

The Buckeye Traction Ditcher Co.

FINDLAY Why Dont You Investigate OHIO

Written for THE CLAY-WORKER.

BUILDING AND BRICK NEWS OF EVANSVILLE AND SOUTHERN INDIANA.

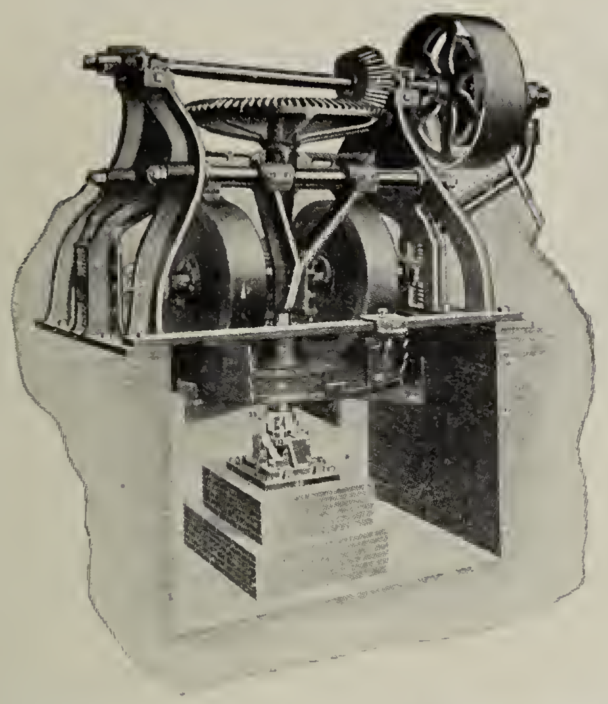
THE FUEL SHORTAGE, caused by the strike of the coal miners has stopped many of the brick and tile factories in southern Indiana, southern Illinois and western and northern Kentucky from operating. The situation is the most serious that has faced the manufacturing world in a generation, and even after the strike has been settled, it may be several weeks before the brick and tile manufacturers will be able to get fuel with which to operate their plants as coal will be given to industries that are regarded as more essential. Early in December two of the three plants of the Standard Brick Manufacturing Co. at Evansville were forced to shut down for the want of coal and later the third plant closed down. John Andres, secretary and treasurer of this company, said the situation did not look very encouraging to him. This company has an electric power attachment to its plants, this being used in the operating of its machinery but they must have coal to burn their brick. They have been able to make a few brick but as soon as the kilns at two of the plants are filled all work will have to stop. Mr. Andres says it may be several weeks after the ending of the miners' strike before they will be able to get under full operation again. The company still has some brick on hand at their three plants and orders that were booked some time ago are being filled, but no new business is being taken at this time.

Not only the Evansville brick factories, but many others in towns in the tri-state section have been forced to suspend operations. The Huntingburg Pressed Brick Company at Huntingburg, the United States Brick Company at Tell City and the Albion Shale Brick Company and the Albion Vitrified Brick Company both at Albion, Ill., have closed down for the time being. The plant of Kleymeyer and Klutey at Henderson, Ky., also has shut down, but the suspension of this plant was due to the labor shortage more than to the fuel shortage as the city of Henderson has been fairly well supplied with coal since the strike started, due to the fact that many of the coal mines in western and northern Kentucky are being operated just the same as they were before the strike began. The suspension of brick factories has caused the postponement on the construction of several factory additions in Evansville. Work is well under way on the Monitor Furniture Company's new factory, the new plant for the Evansville Top and Panel Company, the new plant for the Faultless Caster Company and the office building and two units for the tractor plant of Graham Brothers in Evansville. The contract has been let for the erection of the new Claremont grade school in Evansville that will cost in the neighborhood of $125,000. The Standard Brick Manufacturing Company has furnished or will furnish the brick for practically all the jobs mentioned above. The company has also had a great many orders from northern, central and western Kentucky this year and as Mr. Andres said the other day: "The old Blue Grass State has had quite a building boom this year."

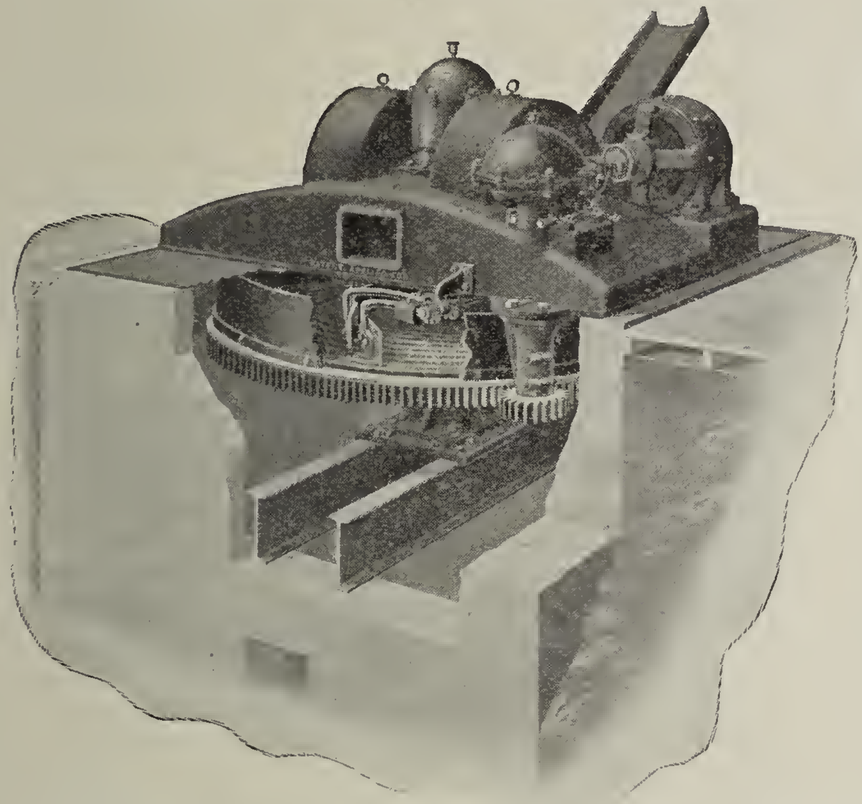
Charles A. Clemens, of Cannelton, and Miss Kathryn Honnigford, of Evansville, were united in marriage on Wednesday, November 12th. The bridegroom is traveling representative for the Cannelton Sewer Pipe Company and is well known to the trade. Mr. and Mrs. Clemens took an extensive bridal tour and are now residing at Cannelton.

H. C. Kleymeyer, manager, and John Andres, secretary and treasurer of the Standard Brick Manufacturing Company of Evansville, are among those from southern Indiana who will attend the joint convention of the Common Brick Manufacturers' Association and the National Brick Manufacturers' Association at Columbus, Ohio, during the third week in February. Mr. Andres says he expects the convention to be one of the greatest ever held by the two associations.

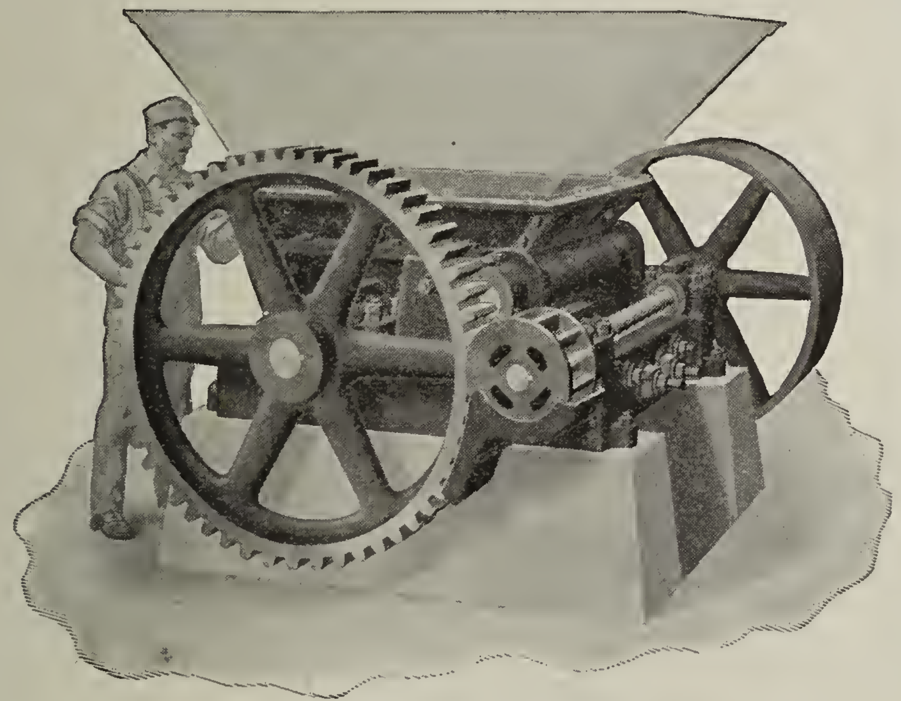
Officials of the Illinois Central railroad are trying to interest capital in a brick plant at Grayville, Ill., a few miles west of Evansville, using the shale deposits along the Wabash river. How much headway has been made in the matter is not known at this time. A HOOSIER.



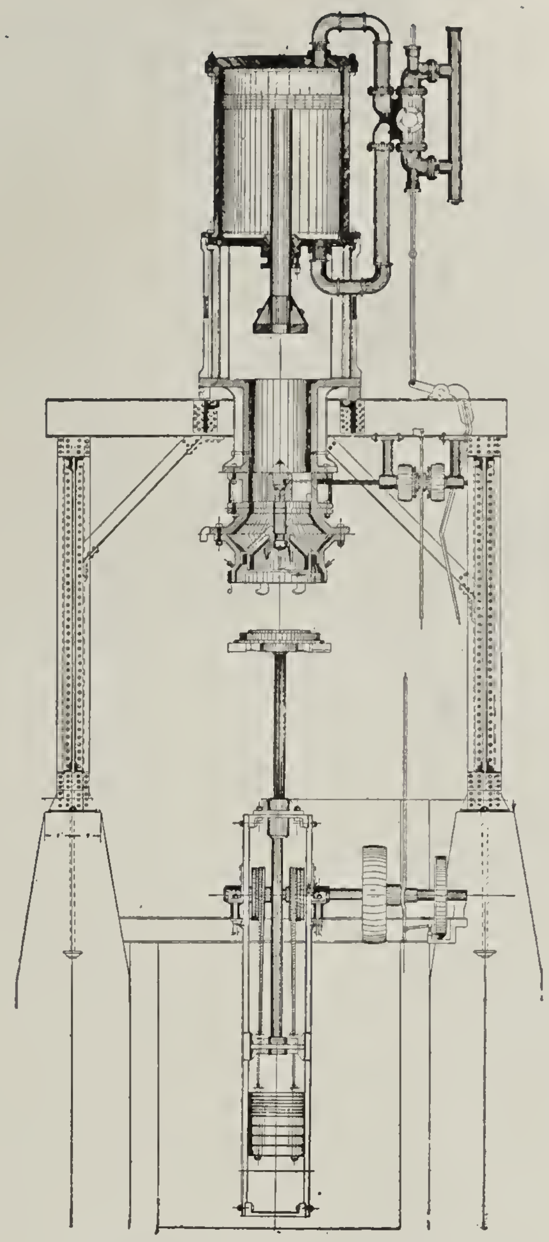
Standard Grinding Pans Made all Sizes



Model A-300 Step Bearing Type Dry and Semi Dry Grinding Pan



Single Roll Crusher



Sewer Pipe Press

Machines for
Crushing,
Grinding,
Pulverizing,
Empounding,
Tempering,
Mixing and for

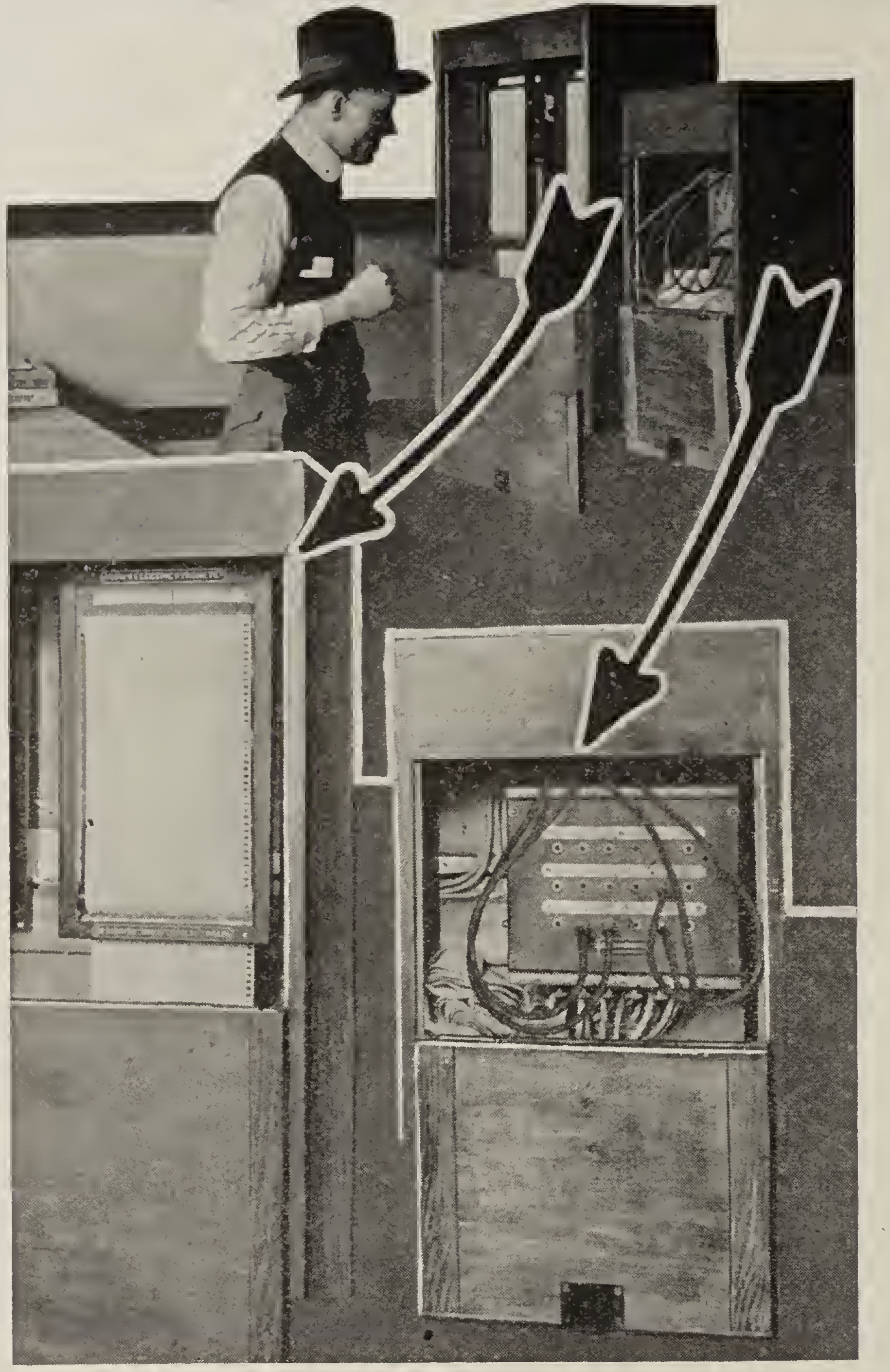
Elevating and Conveying all kinds of Materials.

Steam Presses for Making Sewer Pipe, Drain Tile, Hollow Block, etc., are Manufactured by

THE STEVENSON CO.,

Gen'l Office and Works **Wellsville, Ohio**

Engineering and Western Sales Office,
Monadnock Bldg., Chicago, Ill.



This Is The Way To Keep Your Eyes On The Boys At The Kilns

No need to leave your desk and make the rounds of the kilns to see that the burners are on the job. Check the heat of any kiln instantly with a Brown Recording Pyrometer in your office. Your burners won't take a chance and grow careless 'tween times.

These Brown Two-Record Recorders shown here are today installed in the largest and most progressive brick plants and are meeting conditions most successfully. One reason for this is that the chart record lasts for two months and the only attention the instrument requires is to wind the clock from the outside of the case once a week.

Give us the number and type of your kilns and let us show you how little a Brown Equipment costs and how much it will save. Write today to the Brown Instrument Co., Philadelphia, or one of their district offices in New York, Pittsburgh, Detroit, Chicago, St. Louis, Denver, San Francisco, Los Angeles or Montreal.

Brown Pyrometers

The World's Standard Heat Meters

SEEN IN NEW JERSEY.

PROBABLY demand for common brick was never more active, at any rate at this time of year, in this state than it has been since the opening of October. Every day demand seems to grow and while the opening of December saw rather cold weather and the ground froze, the demand kept up. Buyers insisted upon immediate delivery and many operations of greater or less size were held up because it was impossible to get the brick required to keep them going. Prices rose a little during the month, though in the main they stayed about as they were. In Newark common brick sold at from $18.50 to $20.00. In Jersey City the price was $18.00 to $19.00. In Paterson they were held as high as $21.00, though most sales were made at $18.50 to $19.00. New Brunswick asked $18.50 with some at $18.00. Trenton was getting $18.00 to $19.00. In the southern part of the state the price ran higher, up to $22.00 and $23.00. Hackensack asked from $17.00 to $18.00. Englewood added to this and asked $20.00. Rutherford wanted $20.00 to $21.00, and Ridgewood priced them at $21.00. Passaic asked $20.00, with a few as low as $19.00. Similar prices prevailed in all the other centers of importance in the state and sales suffered somewhat because of this high range of value, yet inasmuch as it is impossible to obtain brick below these figures, or what they approximate to, buyers are paying the price and waiting for more favorable times before they buy large lots, unless they are obliged to do it. Hudson River common brick are quoted in the northern part of the state at $20.00 to $22.00. Face brick are held at $35.00 to $50.00. They average in the larger centers $43.00 to $45.00. In Newark fire brick are held at $65.00 and in Trenton the price is quoted at $70.00. Even at these figures builders are buying more freely than they have in previous years when the price was less. They have more demand and are obliged to buy in order to get material with which to do their work.

Some of the Hackensack yards are still burning. During November the weather was mild and fair and it was possible to work on the yards most of the time. The result was that a number of yards succeeded in getting in a burning in December, which is later than they commonly burn there. The demand for brick from the Hackensack yards has been so active that the yards will go into the winter with practically nothing to supply demand until they can get started in the spring. Movement was very good most of the latter part of the summer and deliveries have been sufficiently active to take away practically everything made. These last burnings are to fill orders and few will have anything left after the orders are filled. Prices have ruled high, but when production costs are figured the price is hardly sufficient to give any material profit. A few yards say that when the price of everything they need is considered they are making nothing, and some are losing. Therefore, the situation is not as rosy as it seems when the selling prices are considered. If these prices only went with low production costs brick men might be millionaires. As it is they are lucky if they keep going.

Hackensack has benefited somewhat this season by the fact that its deliveries have all been made by motor truck. Not a car has been loaded from the yards. A few barge loads have gone down the river, but nothing has been sent out by rail. The trouble of shipping from the Hackensack yards is very great and they found it much easier and less expensive to ship by motor. And the brick will be laid down where they are wanted when they are wanted, with no mixed railroad schedule to disturb them.

Several yards will not be operated any more. The burning sheds are either falling down or are being torn down from time to time. The district was formerly one of the active ones of the East, but like many other industries brickmaking on the Hackensack has suffered because of the competition of improved facilities and better location with reference to shipping, elsewhere, and gradually the yards are going out of business. Much money has been made in the nearly 100 years that the business has been carried on here, but with the shifting of greater activities to other centers the situation has changed and the business has changed with it.

One or two yards are discussing the feasibility of changing to mechanical dryers so that they can work all the year and it is understood that something of this sort may be done the coming season. If improved facilities like mechanical dryers can be introduced, with the motor truck to insure prompt and economical deliveries the situation will improve so that the business may come back to something like its old time volume. The demand is heavy enough and the price paid is surely high enough to tempt a manufacturer to undertake it. Improved facilities for manufacture will solve the problem and put the district back upon the brick map where it was once an important factor.

The situation in the building industry in Newark is such that brick has become one of the most wanted articles on the market. Sellers have no difficulty in disposing of their product. In fact, their chief difficulty is to hold any stock at all. Moreover, they are hampered because they cannot get stock fast enough. Prices are of no consequence. Newark has never seen such a building boom. The operations projected for the future exceed anything which has been undertaken in the past and the outlook indicates activity exceeding that which has startled some of the builders out of a lethargy into which they had fallen as a result of the war. They are busy now trying to catch up.

In Jersey City the conditions are such that buildings cannot be erected fast enough to satisfy demand. Brick is in strong demand and prices are held very firm at present quotations. Many new dwellings will go up this spring and a number of large factories are among the projected structures.

Paterson is now talking of the erection of a new high school to cost $3,000,000. The city has bought a large plot of ground and the desire is to erect a high school building which will be the first unit in a series of buildings planned much upon the same lines as a university. The new building is to be erected sometime within the next year or two, but whether it will be given out inside this coming year is not now known. Many dwellings are to be erected. About 1,200 apartments of one sort or another are needed. The new mill construction has now reach approximately $2,500,000 and more is to come within the next few months.

The building activity mentioned herewith is extending all over the state. Architects say they have more work on their tables today than they ever had before at any one time, while the projects which are mentioned exceed in number even those which are now out. The result is that brickmakers are enjoying unprecedented prosperity, while those who make other burned clay materials are doing a large and growing business.

The clayworking plants about Trenton, including those which make both brick and fireproofing, are doing a good business. Most plants are all closed, excepting the few that have small burnings left to get out. Potteries have a business which exceeds anything in years, though it is no greater than it was during the war. The scarcity of help handicaps some plants, though they see a little better situation during the past few weeks.

MARYLAND BRICK COMPANY CHANGES HANDS.

The Baltimore (Md.) Brick Company was sold recently to a corporation composed of Frank Novak, Warren Griffiss, J. M. Requardt and others, but no change will be made in the management of the company which has been in the capable hands of Warren Griffiss for a number of years. The company holdings in and about Baltimore, comprising about 700 acres, is one of its most valued assets. The output of the company for 1919 will total 90,000,000, which will be increased to 120,000,000 in 1920. Carroll VanNess is president; C. H. Cromwell, vice-president; J. G. Cook, secretary and treasurer; George R. Petts, sales manager, and Warren Griffiss, general manager.

The S. S. S. Special Automatic Soft Mud Brick Machine

"We manufacture the most complete line of Soft Mud Brick Machinery in the world and can meet the requirements of any size yard, from the smallest to the largest.

Let us quote you on your new machinery.

The Arnold-Creager Co.

New London, Ohio.

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Boss Ten-Hour Dryer

Dries 50,000 Brick in a five-track Dryer in ten hours. Car deterioration and rust entirely eliminated.

Boss System of Burning Brick

Will burn your brick for one-half less fuel cost.

We design and build dryers and kilns, and solve all kinds of drying and burning problems.

J. C. Boss Engineering Co
Elkhart, Indiana

YOU HAVE KNOWN FOR YEARS THAT

RICKETSON'S MORTAR COLORS

are pure and brilliant in tone, economical in application, absolutely reliable, and a permanent guarantee against fading and washing.

Why Not Insist on Having Them?

They are the acknowledged best for all uses---Mortar, Brick, Cement, Concrete and Stone.

Red, Brown, Buff, Purple and Black.

RICKETSON MINERAL PAINT WORKS
MILWAUKEE, WIS.

CARS CASTINGS DIES

In our Foundries and Machine Shops we are prepared to furnish Dryer Cars, Clayworkers' castings and Dies of all kinds for sewer pipe press and machines, Etc. Write for Prices

Wm. E. Dee Co. 30 N. LaSalle St.
Chicago, Ill.

NOTES ON THE MANUFACTURE OF EARTHENWARE

By
Ernest Albert Sandeman.

A Practical Treatise Giving Detailed Particulars Regarding Materials, Preparation and Manufacture.

PRICE $3.00.

T. A. Randall & Co., Inc., Indianapolis, Ind.

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 35 cents a line, or 6 cents a word each insertion; about six words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than $1.00.

WANTED, ETC.

WANTED.

An American No. 1 Giant clay machine. State condition.

Address S & M,
11 3 d Care Clay-Worker.

WANTED.

A good ceramic man with some practical experience by ceramic engineering company. Address C. E. C.,
Care The Clay-Worker.

WANTED.

Straight way cable conveyor system. 2,500 flat steel pallets. 10,000 feet one-inch black pipe. One vacuum pump. Address BOX 315,
12 1 d Meridian, Miss.

WANTED.

About two hundred single deck dryer cars, also a ten-foot pug mill. Write fully. Address

W. H. M.,
12 1 d Care Clay-Worker.

WANTED.

A good second-hand four-mold dry press, must be in first-class condition and prico right. Address

DRY PRESS,
12 1 d Care Clay-Worker.

WANTED.

Position as manager or superintendent of brick plant. Experienced in all details from clay bank to cars. Employed but desire change. Best references. Address,

CLAY BANK,
11 1 c Care Clay-Worker.

WANTED.

A full equipment of clayworking machinery for the purpose of making side cut brick. This equipment must include dry pans, pug mill, auger machine, automatic cutter, and two or three hundred dryer cars. Give full description and location. Address

EQUIPMENT,
12 1 d Care Clay-Worker.

WANTED.

Two brick burners, must be thoroughly conversant with burning in up draft scoved kilns. Good wages and steady work the year round. Address,

BRICK BURNER,
11 1 d Care Clay-Worker.

WANTED.

Position as production manager or superintendent of high-grade face, paving or hollow ware plant. 20 years practical experience. Address

E. M. E.,
12 1 cm Care Clay-Worker.

WANTED.

Superintendent for large fire brick plant. Must be practical and experienced in all departments. Splendid opportunity for the right man." Address

EXPERIENCED,
12 3 d Caro Clay-Worker.

WANTED.

Drag line cableway excavator with five hundred to seven hundred feet range, steam or electric drive. State full particulars as to capacity, condition, make, price and location. Address

EXCAVATOR,
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WANTED.

Position as manager with a large responsible fire brick concern. Only a real high grade position considered. Many years' experience in both manufacturing and sales. At present employed but desire change. Address

J. B.,
11 3 d Care Clay-Worker.

WANTED.

A first-class brick plant machinist, one who has had experience in keeping up clayworking machinery, such as automatic side cutter, dry pans, and a good general man who can be responsible for the upkeep of all machinery. Plant located near Kansas City. Address

MACHINIST,
12 1 d Care Clay-Worker.

WANTED

I am making brick by hand, rack and pallet system. Have a good location in center of city of 250,000 population. Plenty of clay. I want a partner to help install machinery. Address

A. C. SHARPLEY, President
Robertson Brick Co.,
Birmingham, Ala. 12 tf d

WANTED.

Used or second-hand dryer cars with single, double, or triple decks. Advise name of maker, gauge, condition and full particulars. Inquire of DRYER CARS,
12 1 d Care Clay-Worker.

FOR SALE, ETC.

BRICK PLANT FOR SALE.

Owner having died, we offer for sale a 50,000 daily capacity brick plant at Hobart, Okla., near oil fields. Must be sold at once. Abundance of good shale. No other plant near. If interested write to,

MRS. E. C. MURPHY,
11 1 cm Hobart, Okla.

FOR SALE.

One 3-mould dry press machine; one 80-horsepower boiler; one 60-horsepower engine pulverizer; three trucks; one clay cutter; clay feeder; belting, shafting and pulleys; revolving screen and stack. All in good condition. Address

A. SPILKER & SONS,
12 1 d Quincy, Ill.

FOR SALE.

UP-TO-DATE BRICK AND TILE PLANT.

A modern plant equipped with machinery to make brick and building tile. There is an inexhaustible supply of excellent shale and clay with abundance of water and railroad siding in the plant. No dryers or kilns have been built, but the necessary brick and tile for same can be made. Present owner not a brick man, and wishes to dispose of the plant on reasonable terms. Coal land adjoining can be purchased or leased. Plant is well located in desirable territory, with good shipping facilities to Indianapolis, Cincinnati, St. Louis or Chicago, and intermediate points. Coal, shale and clay of high grade. Address, MODERN,
10 tf d Care The Clay-Worker.

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FOR SALE

FOR SALE.

One International No. 430, 8-foot double gear pug mill and one No. 205 International disintegrator.

HOWARD REFRACTORIES CO.,
11 1 dm Dorsey, Md.

FOR SALE.

FIRE CLAY PROPERTIES COSTING $650,000, NOW $150,000.

I have for sale in the state of Illinois, two valuable clay properties with inexhaustible supplies of red and blue shale, as well as fire clay of the very best quality. The first has eight down-draft kilns of 100,000 brick capacity each, connected by tunnels with a brick stack 100 feet high. The plant is complete with modern machinery ready for operation for the manufacture of vitrified brick. Also one Vulcan steam shovel worth $20,000.

Thirty-five acres of land, underlying which is a bed of blue shale 80 feet thick. Under 20 acres of this is a 6-foot vein of coal. Switches and tracks to railroads, convenient to markets.

Cost originally, $250,000. **Can be purchased for $100,000.** Can commence manufacture of brick at any time.

The other plant consists of 240 acres of land in fee, with a 30-inch vein of coal immediately over an inexhaustible supply of red shale and very best quality fire clay (see Geological Report of State of Illinois). Coal, shale and clay delivered to plant on inclined railroads from adjoining mines. In addition, the owner has mining rights in fee of 1,050 acres with deposits of coal and fire clay, also 440 acres leased land. No hoisting necessary. Plenty of brick buildings for employes. This plant has 10 down-draft kilns of 1,000,000 brick capacity—all in first-class condition. This plant represents an investment of $400,000. **Can now be purchased for $50,000.** This plant would need new and modern machinery.

Both the above properties were shut down and passed through receivership at the outset of the European War. Full information to anyone interested supplied. In the hands of the right parties, either can be operated at a profit of $100,000 per annum. Call, wire or write,

CHAS. A. VALLETTE,
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FOR SALE.

At a bargain, Potts brick machine, Wellington sander and Meitz and Weiss 50-h.p. oil engine. All in excellent condition. Address

ZERRENNER BROS.,
12 3 cm New London, Wis.

FOR SALE.

One of the best drain tile plants in Indiana. Good location, good demand for product. Plant well equipped, but owner has other interests which take up his time. If you are looking for a bargain, write

TILE PLANT,
7 tf dl Care The Clay-Worker.

FOR SALE.

J. D. Fate & Co. "D" size brick and tile mill	$150.00
E. M. Freese revolving hand tile cut-off	25.00
Two one-horse dump carts, each.	20.00
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Cut-off for 10 and 12 inch tile (Leach)	25.00
J. D. Fate Co. side delivery brick cut-off	25.00

Address CLYDE,
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FOR SALE

The American Model C Dry Brick Press for sale at a bargain. Address Wisconsin Brick Company, Madison, Wisconsin. 12 1 d

---

FOR SALE.

Fire brick plant in Pennsylvania. Manufacturing all grades fire brick, including the highest. Established business. Plant operating full capacity. Address,

FIRE BRICK,
11 3 cm Care Clay-Worker.

OPPORTUNITY
BRICK MANUFACTURER.

Small plant, not over $25,000 invested, in West Texas, on Santa Fe Coast line, now making common brick but having a magnificent clay for face, vitrified and other clay products, is increasing capitalization and offers to manufacturer of proven ability, financial interest in plant to operate. Owners so far engaged principally in proving material, product and market territory and find all unquestionably attractive with capital available.

POST BRICK & TILE CO.,
11 1 c Post, Texas.

RAILS *10,000 Tons* 8 *lbs. up to* 100 *lbs.* *Immediate Shipment*

ZELNICKER IN ST. LOUIS

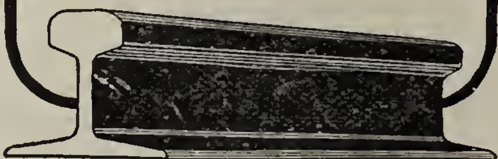
Get Bulletin No. 270—60 pages Bargains in Rails, Spikes, Bolts, Frogs' Switches, Locomotives, Cars, Steam Shovels, Road Rollers, Tanks, Pipe, Piling, etc.

What Have You For Sale?

"RICHARDSON for RAILS"

Constant stocks of New and Relaying Rails, Spikes and Bolts. Frogs and Switches. Tell us your requirements.

RICHARDSON & CO., Inc.
2101 Oliver Bldg.
Pittsburgh, Pa.



FOR SALE.

4 Wooden Side Dump Cars, 1½ cubic yd. capacity, 36-in. guage.
Address MACHINERY,
Care The Clay-Worker.

FOR SALE.

Tile factory fully equipped, in good running order. On railroad switch, with plenty of clay, steam dry sheds, good demand for all output. Price right. Manager died and must close up business.

TENNYSON NATIONAL BANK,
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WANTED.

Tile plant with two or three kilns, northwestern Ohio preferred.

H. T. POLSDORFER,
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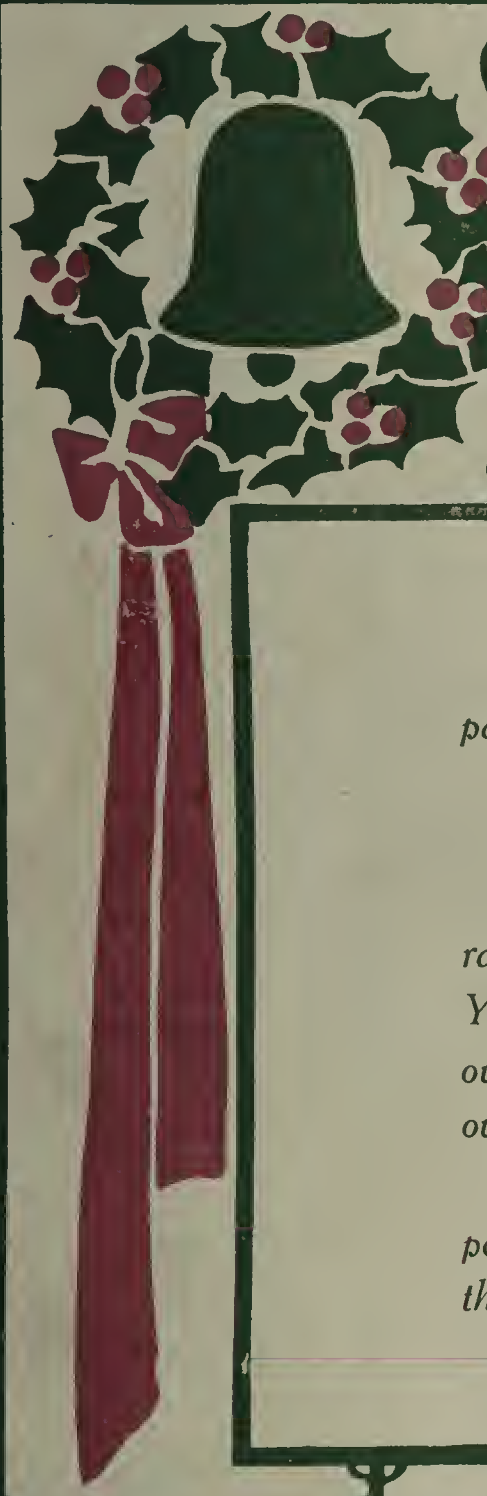
WANTED

Man with 20 years experience erecting plants, manufacturing and selling brick and hollow-ware desires connection with Southern plant with opportunity of becoming financially interested later.

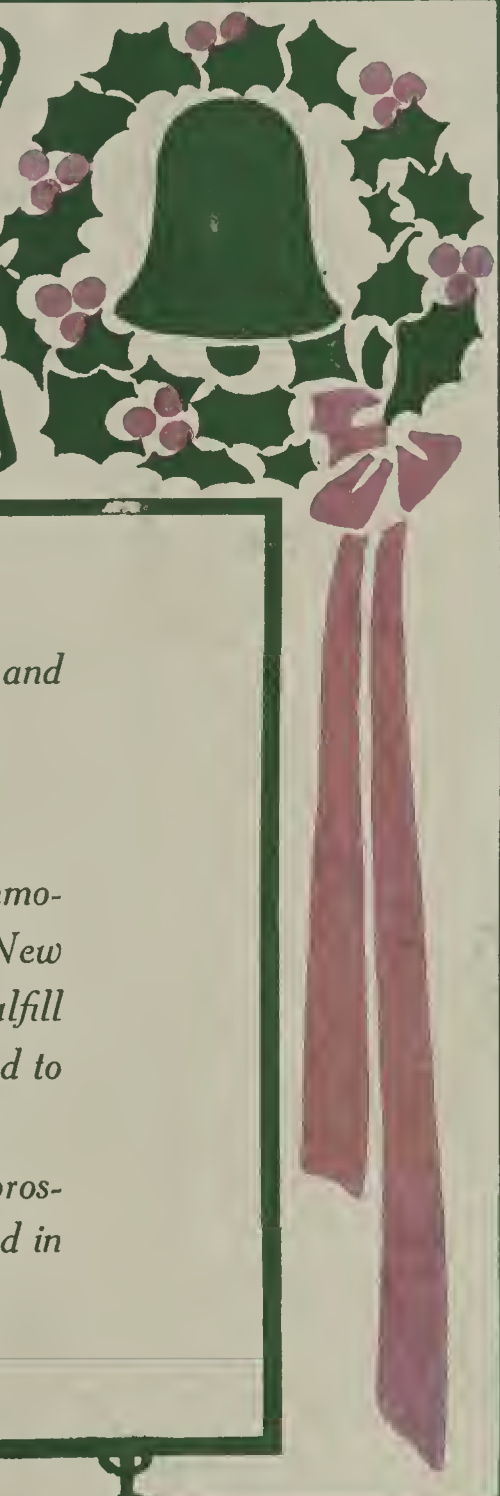
Address R. W. B. c/o Clay-Worker
121d

THE CLAY WORKER



Christmas

1919



The Clay-Worker extends to its readers and patrons a most earnest wish for a

Merry Christmas

May the spirit of Him, whose birth we commemorate with Christmas, be with us throughout tha New Year, to guide us in the way we should go, to fulfill our missions here on earth to our fellow man and to our Christ.

May the New Year prove a happy period of prosperity, peace and good will to all those engaged in the clay industries.

T·A·RANDALL·&·CO
PUBLISHERS·INDIANAPOLIS

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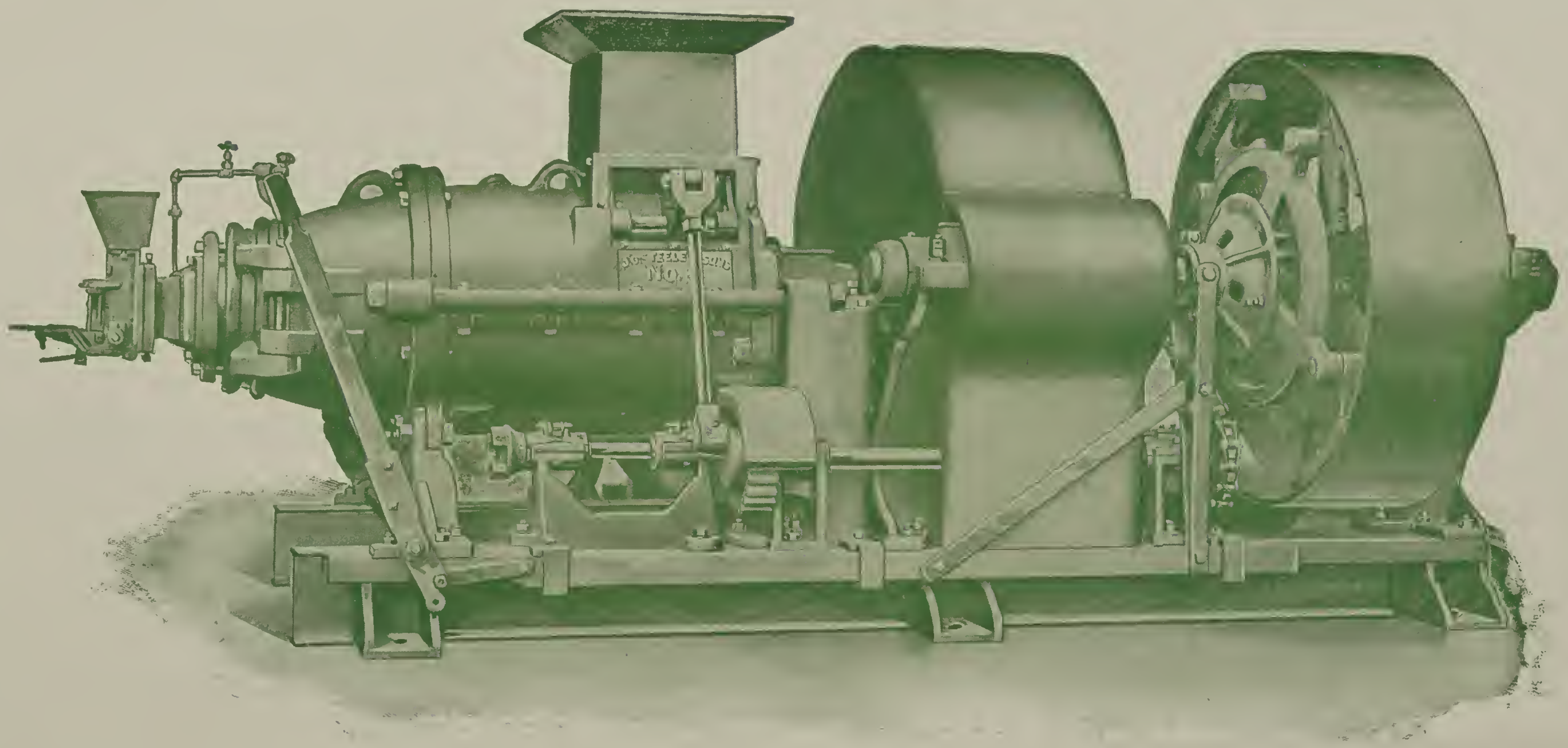
THE SOLITARY No. 6.

IN A CLASS ALL ALONE



SIMPLE, SILENT, SENSIBLE, SUCCESSFUL, SATISFYING No. SIX

Side Cut or End Cut.

SINGLE GEARED MACHINE OF HEAVY WEIGHT THAT CAN BE RUN AT HIGH SPEED WHEN DESIRED, AND OF THE LARGEST CAPACITY. NOTHING BETTER HAS BEEN BUILT.

Ask for our new catalogue, descriptive of our five sizes of Brick Machines, Side Cutters, End Cutters, Crushers, Pug Mills, Feeders, Cars, Hoists, etc.

J. C. STEELE & SONS, Manufacturers of Brick Making Machinery **Statesville, N. C., U.S.A.**

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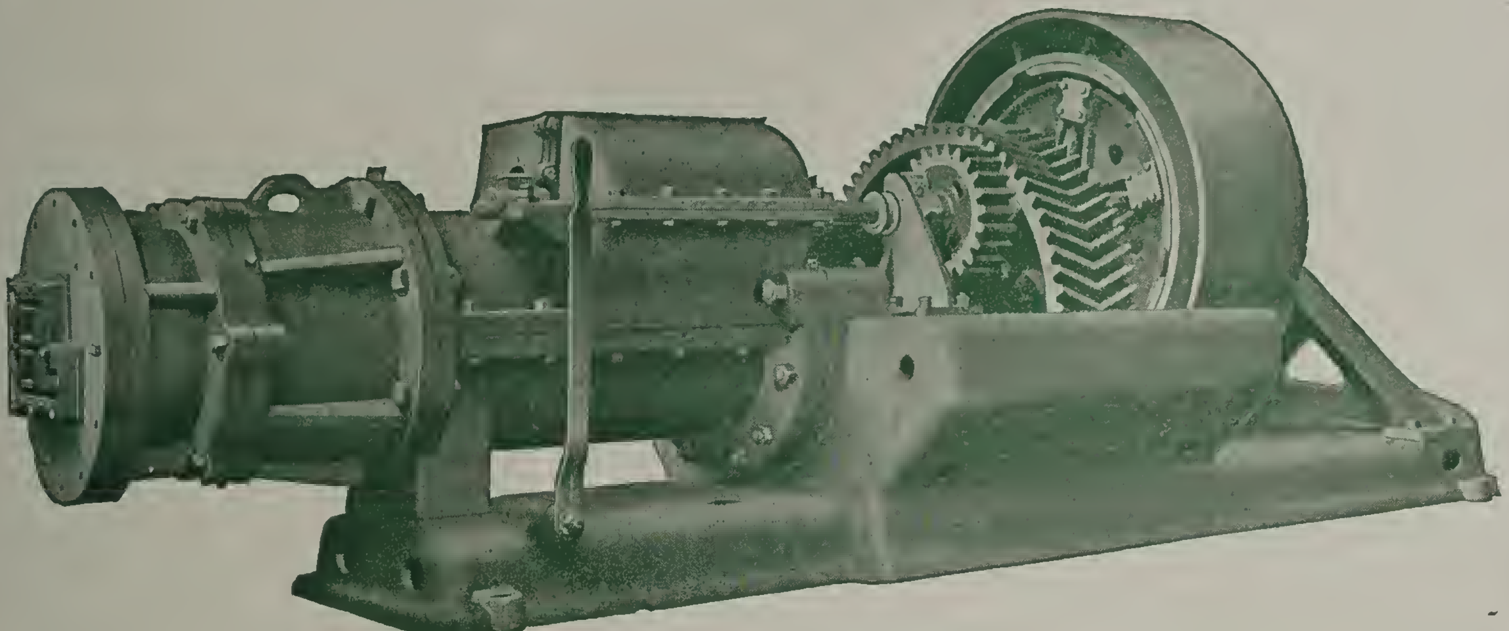
Kansas City, Mo.

Northern Agents,
Manufacturers Equipment Co.
Dayton, Ohio

Eastern Agents
Carter Engineering Co.
39 Cortland St., New York, N. Y.

For Brick or Hollow-ware

BONNOT No. 20 Machine



The No. 20 is a 21,000 lb. Machine, Bonnot designed and Bonnot built, with a capacity of 200 tons of hollow-ware per day.

It is mounted on a bed-plate and frame cast together including support for outboard bearing and oil reservoir.

Two thrust bearings are provided, thus eliminating all possibility of shut-down on that score. This is just another example of the reliability of Bonnot design.

The gears are machine molded of the helical or "rolling mill" type.

The No. 20 will make profits for the manufacturer who wants large capacity in either hollow-ware or brick.

The Bonnot Company

CANTON, OHIO

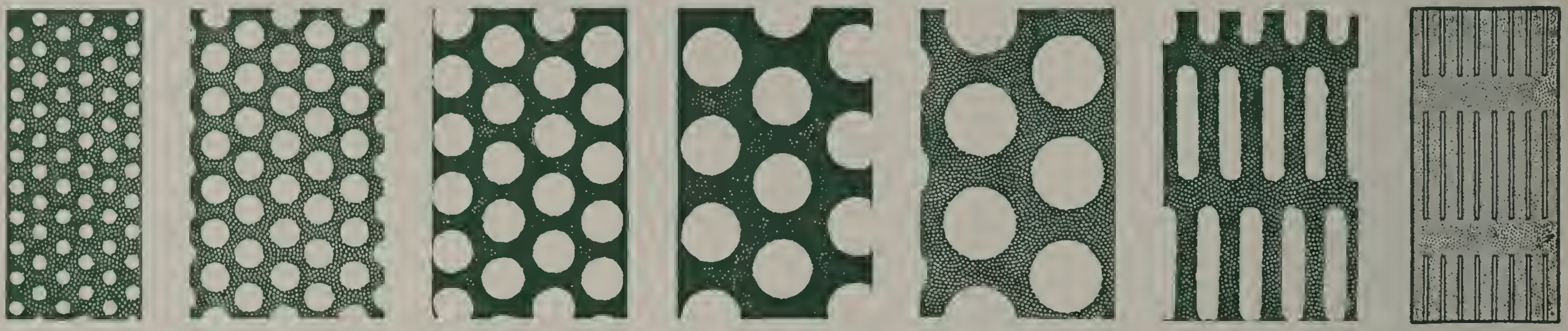
"LET US STANDARDIZE YOUR PLANT"

There is a Bonnot Machine for every need in Clay-Working. Tell us your needs and we will send you full information regarding a Bonnot machine to fit your needs.

PERFORATED STEEL SCREENS

FOR CLAY, SHALE, SAND, GRAVEL, STONE AND CEMENT.

Anything You Want in Perforated Metal.



Perhaps you may be interested in some of the sizes shown above; they are a few of the many that we make.

We have sizes suitable for DRY PAN SCREENS, CAR DECKS, CONVEYORS, Etc.

Tell us of your needs that we may send you samples.

The Harrington & King Perforating Co.

NEW YORK OFFICE,
No. 114 Liberty St.

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CHICAGO, ILL., U. S. A.

Reduce Breakage With the Mathews

Users everywhere tell us that their Mathews Gravity Conveyers, installed six to fifteen years ago, are as serviceable today as when new.

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Write us today.

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SPEED ECONOMY
GRAVITY ROLLER CONVEYER

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BRANCH FACTORIES: Port Hope, Ontario London, England

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RODGERS FOR DRYERS

LIKE "EXPERIMENTS"==

AT **YOUR** EXPENSE?

If **not,** in placing the problem of drying your clay product in the hands of another, BE SURE you are not MISPLACING YOUR CONFIDENCE, but placing it in the hands of

EXPERIENCED DISIGNERS OF CLAY PRODUCTS DRYERS.

RODGERS WASTE HEAT DRYERS

are drying the brick in 80% of the largest plants in the U. S. A.

WE DON'T EXPERIMENT AT ANOTHER'S EXPENSE.

WE KNOW HOW.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists
Clay Products Engineers

Largest Manufacturers of Brick Drying Equipment in the United States.

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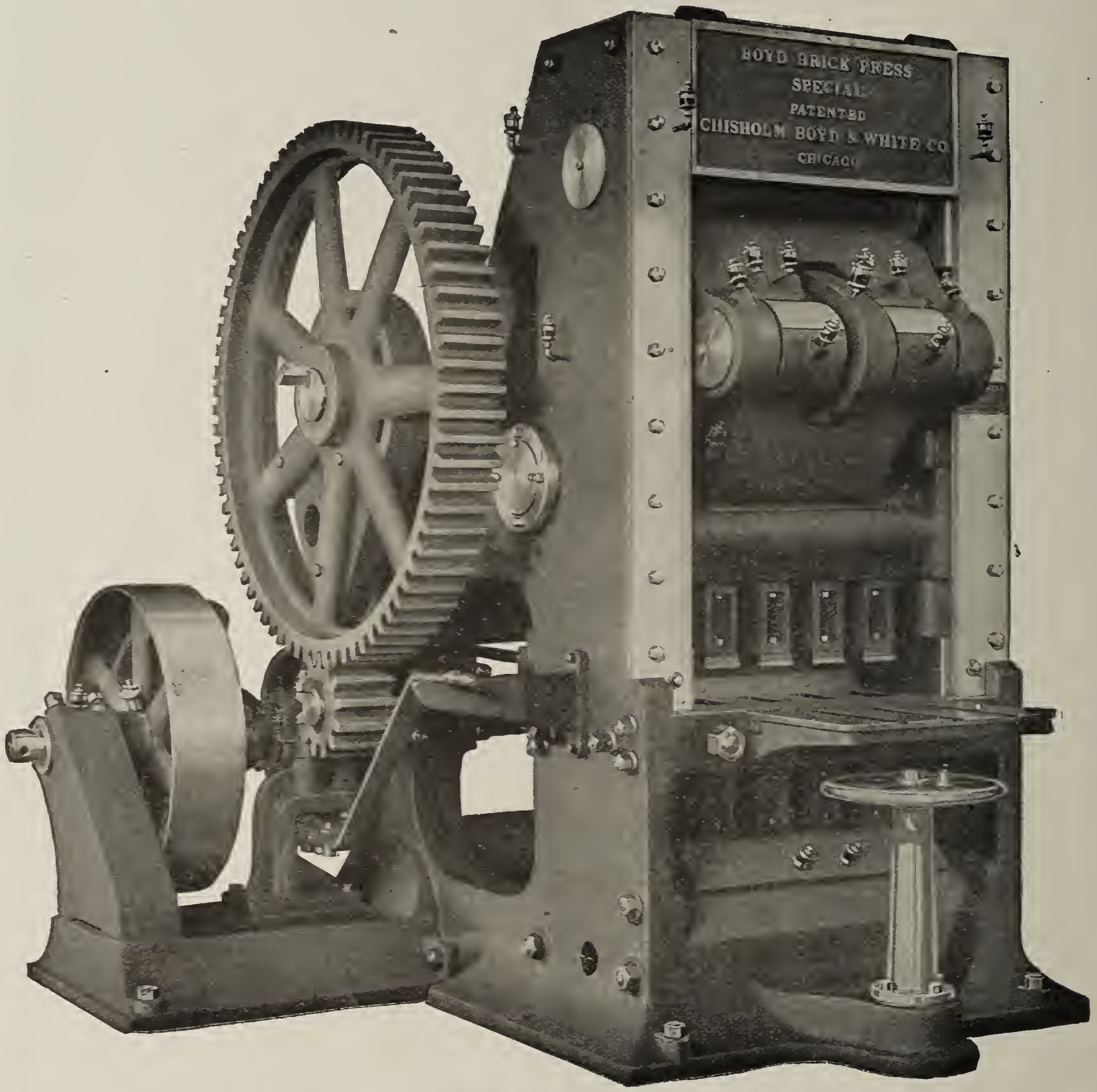
The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price"



ITS OWN BEST SALESMAN

FIRE BRICK PRODUCED AT LOWER COST

For more than 20 years the BOYD BRICK PRESS has been in use for making FIRE BRICK and shapes, and today is used by many of the largest and most successful fire brick manufacturers in the country.

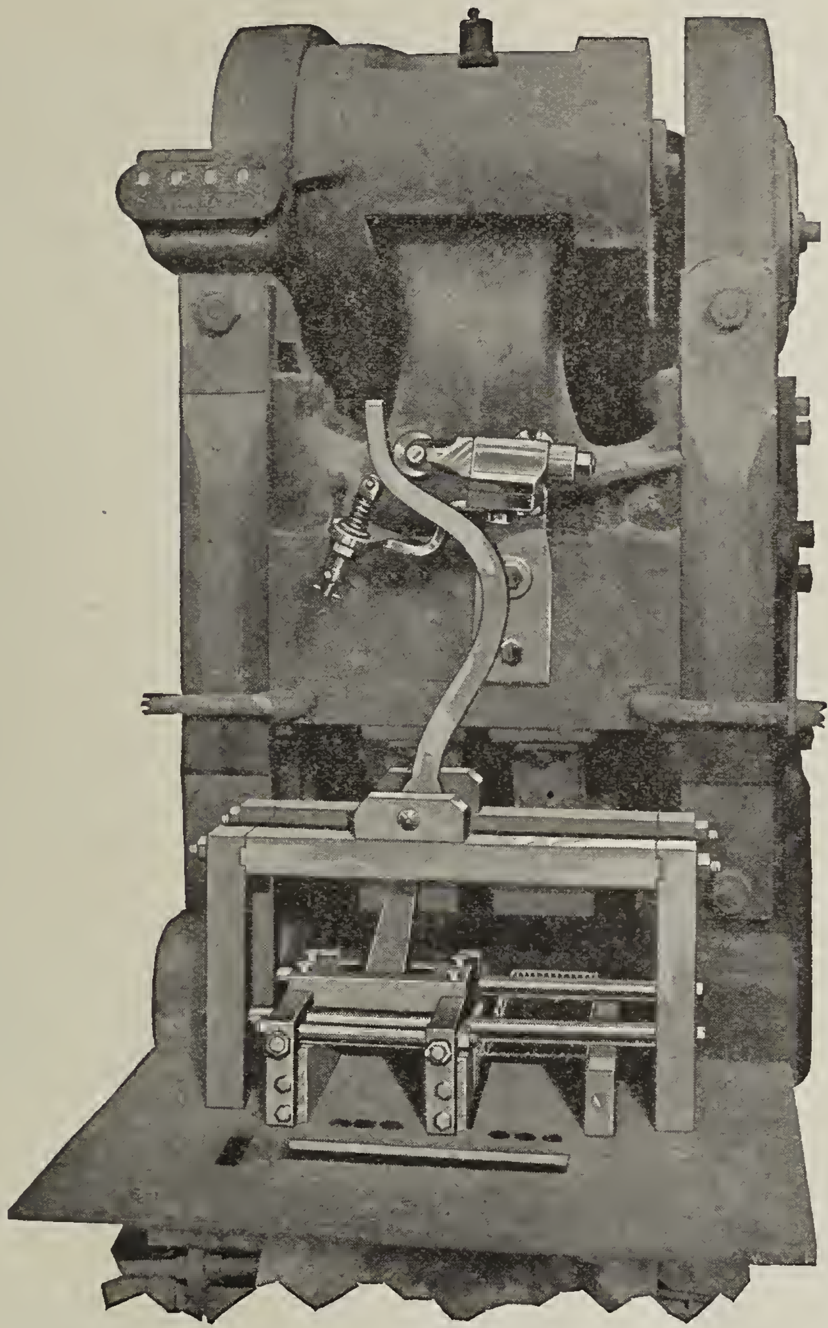
Chisholm, Boyd & White Company
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Make Rough Textures

On Any

Dry Press

From any clay or shale



We made more than half million Rough Texture Brick during 1918 and have many in the buildings.

Send for sample and circular

Progress Press Brick & Machine Co.,

Established 1890

St. Louis, Mo.

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To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

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The Brown Instrument Co.
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Westinghouse Elec. & Mfg. Co.

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Ceramic Supply & Con. Co.
N. J. State University.

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Ceramic Supply & Con. Co.

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The Stevenson Co.

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Arbuckle & Co.
International Clay Mach. Co.
Rodgers Engr. Co., the L. E.

Boilers.
American Clay Machinery Co.
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Metropolitan Paving Brick Co.
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Terre Haute Vit. Brick Co.

Brick Conveyors.
American Clay Machinery Co.
Mathews Gravity Carrier Co.
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American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
International Clay Mach. Co.
Progress Press B. & Mach. Co.

Brick Recutter.
International Clay Mach. Co.

Brick Setting Machinery.
American Clay Machinery Co.
Dickinson, W. W.

Buffing Machinery.
American Clay Machinery Co.

Burning and Drying Systems.
American Clay Machinery Co.
Amer. Dressler Tunnel Kilns
Boss, John C.
Ceramic Supply & Con. Co.
Didier March Co.
International Clay Mach. Co.
Koch, J. J.
Manufacturers' Equipment Co.
Philadelphia Drying Mach. Co.
F. H. Robinson
Rodgers Engineering Co., L. E.
Standard Dry Kiln Co.

Cars.
(See Dryer and Dumping Cars.)

Castings.
American Clay Machinery Co.
Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Fate-Root-Heath Co.
Frost Mfg. Co.
Lancaster Iron Works.
Manufacturers' Equipment Co.
Potts & Co., C. & A.
The Stevenson Co.
Taplin-Rice-Clerkin Co.
Toronto Foundry & Mach. Co.

Cements, Insulating.
Celite Products Co.

Ceramic Engineers.
Crossley Machine Co.
Koch, J. J.
Lovejoy, Ellis.
Richardson, W. D.

Circuit Breaker.
Westinghouse Elec. & Mfg. Co.

Clay Crushers and Pulverizers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Chambers Brick Machinery Co.
Crossley Machine Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Frost Mfg. Co.
International Clay Mach. Co.
Manufacturers' Equipment Co.
Phillips & McLaren Co.
Potts & Co., C. & A.
The Stevenson Co.
Wallace Mfg. Co.

Clay Dryers.
American Process Co.
Ceramic Equipment Co.
Lancaster Iron Works.
Philadelphia Drying Mach. Co.

Clay Feeders and Mixers.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Lancaster Iron Works.
Manufacturers' Equipment Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.
F. H. Robinson
The Stevenson Co.

Clay Gatherers.
(See Scrapers.)

Clay Steamers.
American Clay Machinery Co.
International Clay Mach. Co.
F. H. Robinson

Clay Technologists.
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Fate-Root-Heath Co.
Koch, J. J.
Lovejoy, Ellis.

Clay Testing.
L. W. Flood

Clutches.
(See Supplies.)

Coloring Materials.
Chattanooga Paint Co.
National Paint and Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.
Orton, Edward, Jr.

Consulting Engineers.
Lovejoy, Ellis.
Richardson, W. D.

Conveying Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Lancaster Iron Works.
Manufacturers' Equipment Co.
Mathews Gravity Carrier Co.
Potts & Co., C. & A.
F. H. Robinson
Taplin-Rice-Clerkin Co.
Toronto Foundry & Mach. Co.

Continuous Kilns.
American Clay Machinery Co.
Amer. Dressler Tunnel Kilns
Ceramic Supply & Con. Co.
Didier March Co.
International Clay Mach. Co.

Contracting Engineers.
Ceramic Supply & Con. Co.
Koch, J. J.
Lovejoy, Ellis.
Manufacturers' Equipment Co.
Richardson, W. D.

Couplings.
(See Supplies.)

Cutting Tables (Brick & Tile).
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers' Equipment Co.
F. H. Robinson
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

Cranes.
Ball Engine Co.

Cutting Wires.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers' Equipment Co.
Mittler Wire Mfg. Co.
F. H. Robinson

Dampers.
(See Supplies.)

Dies.
Arbuckle & Co.
F. H. Robinson
The Stevenson Co.
Toronto Foundry & Mach. Co.

Disintegrators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Lancaster Iron Works.
Manufacturers' Equipment Co.
Potts & Co., C. & A.
F. H. Robinson
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

Draft Gauges.
Brown Instrument Co.
Ceramic Supply & Con. Co.
Engelhard, Charles
Thwing Instrument Co.

Drag Line Excavators.
Ball Engine Co.

Drain Tile Machinery.
(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.
(See Supplies.)

Dryers.
American Clay Machinery Co.
American Process Co.
Boss Co., John C.
Ceramic Equipment Co.
Fate-Root-Heath Co.
International Clay Mach. Co.
Lancaster Iron Works
Manufacturers' Equipment Co.
Philadelphia Drying Mach. Co.
F. H. Robinson
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The

Dryer Cars.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.

(Continued on Page 498)

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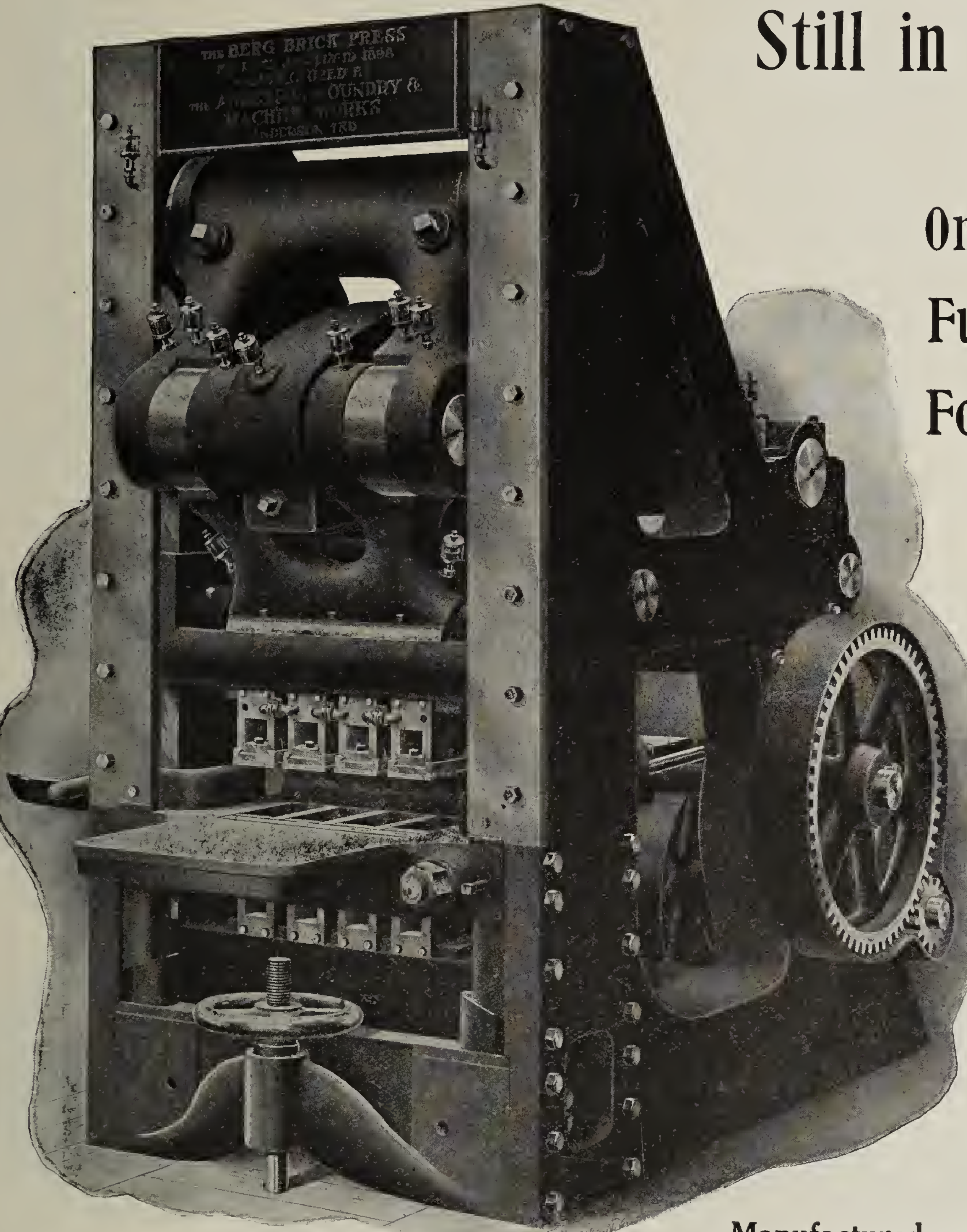
WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



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THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

ANDERSON, IND.

Buyers Ready Reference List—Continued.

International Clay Mach. Co.
Lancaster Iron Works.
Philadelphia Drying Mach. Co.
Potts & Co., C. & A.
F. H. Robinson
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

Dry and Wet Pans.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Eagle Iron Works
Fate-Root-Heath Co.
Freese & Co., E. M.
Frost Mfg. Co.
International Clay Mach. Co.
Lancaster Iron Works
Manufacturers' Equipment Co.
Phillips & McLaren Co.
The Stevenson Co.

Dump and Clay Cars.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Lancaster Iron Works
Manufacturers' Equipment Co.
Potts & Co., C. & A.
F. H. Robinson
Steele & Sons, J. C.
Taplin-Rice-Clerkin Co.

Dynamite.
E. I. duPont de Nemours Co.

Electric Instruments.
Brown Instrument Co., The
Engelhard, Chas.
Thwing Instrument Co.
Westinghouse Elec. & Mfg. Co.

Electric Shovels.
Ball Engine Co.

Electrical Furnaces.
Brown Instrument Co., The

Electrical Locomotives.
Arbuckle & Co.
Westinghouse Elec. & Mfg. Co.

Electrical Supplies.
American Clay Machinery Co.
International Clay Mach. Co.
Westinghouse Elec. & Mfg. Co.

Elevating Equipment.
(See Conveyors.)

Engines.
American Clay Machinery Co.
Arbuckle & Co.
Ball Engine Co.
Carnell, Geo.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers.
American Clay Machinery Co.
Ceramic Supply & Con. Co.
Crossley Machine Co.
Lovejoy, Ellis
Manufacturers' Equipment Co.
The Stevenson Co.

Excavating Machinery.
Ball Engine Co.

Explosives.
E. I. duPont de Nemours Co.

Fans.
American Clay Machinery Co.
Manufacturers' Equipment Co.
Philadelphia Drying Mach. Co.
Rodgers Engr. Co., The L. E.

Feed Water Heaters.
American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

Filter Presses.
American Clay Machinery Co.
Crossley Machine Co.
International Clay Mach. Co.
Taplin-Rice-Clerkin Co.

Fire Brick and Fire Clay.
Parker-Russell M. & M. Co.

Flower Pot Machinery.
Baird Machinery & Mfg. Co.
Crossley Machine Co.
Taplin-Rice-Clerkin Co.

Friction Clutch Pulleys.
(See Supplies.)

Furnaces.
Brown Instrument Co., The
International Clay Mach. Co.
Lancaster Iron Works

Furnace Insulation.
Celite Products Co.

Gas Fire Continuous Kilns.
International Clay Mach. Co.
Manufacturers' Equipment Co.

Gears.
(See Supplies.)

Generators.
Westinghouse Elec. & Mfg. Co.

Grading Machinery.
Ball Engine Co.

Granulators.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Lancaster Iron Works
Manufacturers' Equipment Co.
Potts & Co., C. & A.
Steele & Son, J. C.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.

Grates.
American Clay Machinery Co.
Arbuckle & Co.
Manufacturers' Equipment Co.
Marion Mach., Fdy. & Sup. Co.
Potts & Co., C. & A.

Gravity Carriers.
Mathews Gravity Carrier Co.

Gravity Haulage.
American Clay Machinery Co.
The Stevenson Co.

Hand-Power Presses.
American Clay Machinery Co.
Carnell, Geo.
Crossley Machine Co.
Fate-Root-Heath Co.
International Clay Mach. Co.

Hand Winch.
(See Supplies.)

Hangers.
(See Supplies.)

Heat Insulation.
Celite Products Co.

Hoists.
(See Supplies.)

Hollow Brick Machinery.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer Co., H.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers' Equipment Co.
F. H. Robinson
The Stevenson Co.
Wallace Mfg. Co.

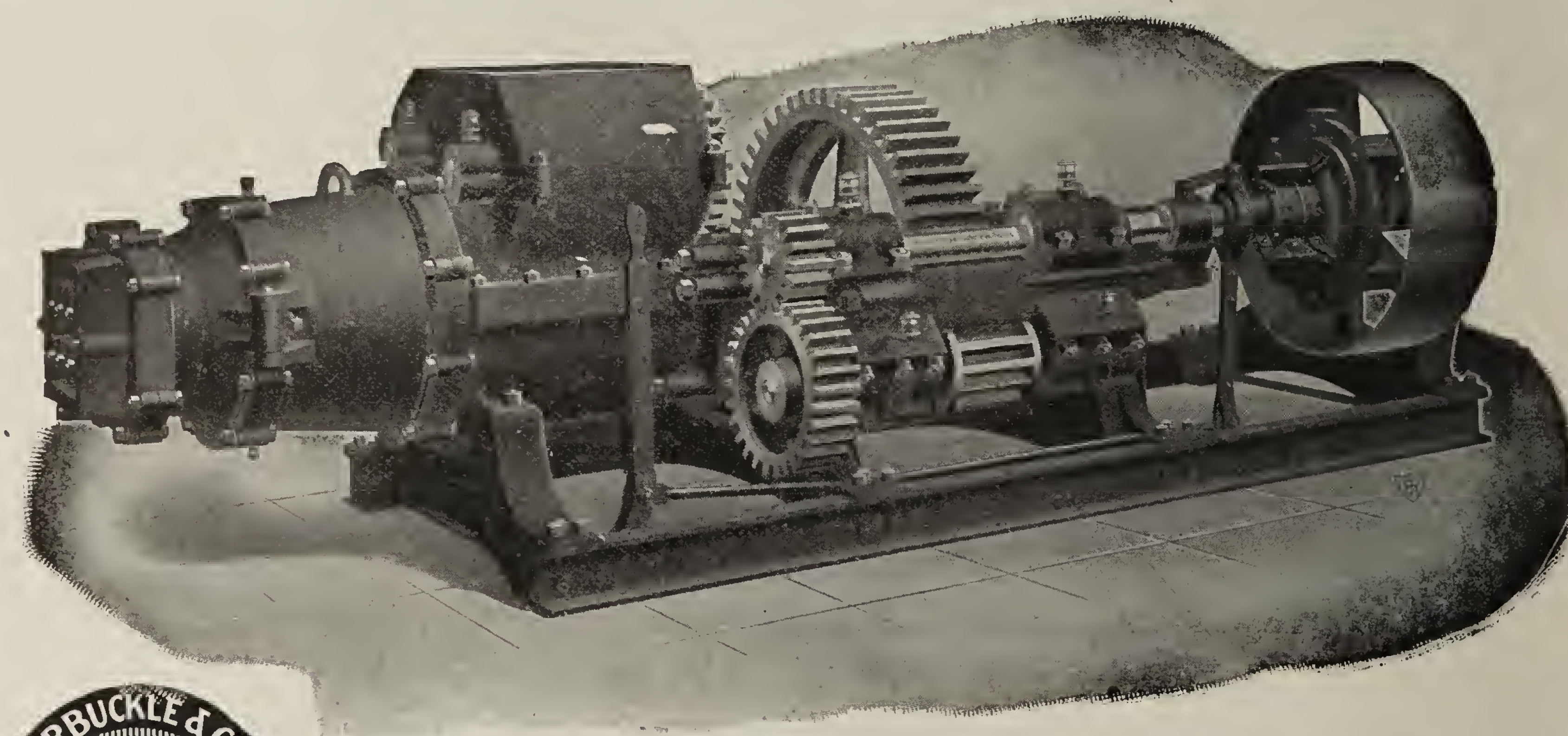
Insurance.
Mantel, Tile and Grate Monthly

Insulating Materials.
Celite Products Co.

Jacks.
(See Supplies.)

(Continued on Page 500)

If you want real service—USE THIS MACHINE. Hundreds of satisfied users. Let us tell you about this.



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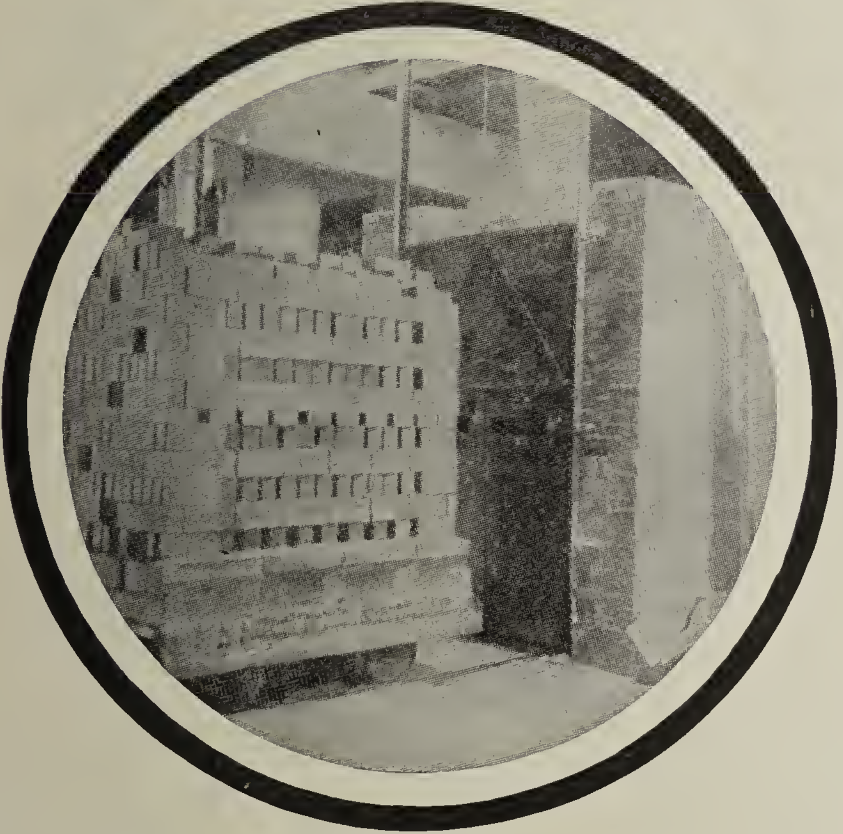

Continuous Railroad Tunnel Kiln

You will find that you are indeed fortunate if you are operating our railroad tunnel kiln for it requires only one half the usual amount of coal to burn ware of good quality. 50 per cent of the total amount of fuel consumed by the average plant will give you their maximum production.

And this is only one of the many advantages of ours over other types of kilns. It reduces to the minimum your pay roll and solves the labor problem simply because only half the number of men are required.

Let us give you complete information.

DIDIER-MARCH CO.
Perth Amboy, N. J.
Geo. Balz, Gen'l Mgr.

Contractors Manufacturers of Refractories Engineers

Buyers Ready Reference List—Continued.

Kilns.
American Clay Machinery Co.
Amer. Dressler Tunnel Kilns.
Boss Co., John C.
Didier-March Co.
International Clay Mach. Co.
Manufacturers' Equipment Co.
Richardson, W. D.
Rodgers Engineering Co., L. E.

Kilns, Doors, Castings and Frames.
(See Supplies.)

Kiln Insulation.
Celite Products Co.

Knives.
(See Supplies.)

Locomotives.
Fate-Root-Heath Co.

Manganese.
National Paint and Manganese Co.

Mechanical Draft.
American Clay Machinery Co.
Boss, J. C.
Manufacturers' Equipment Co.

Mineral Paint.
(See Coloring Materials.)

Molds (Brick).
American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
International Clay Mach. Co.
Potts & Co., C. & A.

Mold Sanders.
American Clay Machinery Co.
Carnell, Geo.
Eastern Brick Machinery Co.
International Clay Mach. Co.
Lancaster Iron Works.
Potts & Co., C. & A.
Wallace Mfg. Co.

Mortar Colors.
(See Coloring Materials.)

Motors.
Brookville Truck & Tractor Co.
Westinghouse Elec. & Mfg. Co.

Motor Trucks
Brookville Truck & Tractor Co.
Fate-Root-Heath Co.

Oil Burners.
Lancaster Iron Works.
Schurs Oil Burner Co.

Paints.
(See Coloring Materials.)

Pallets.
Ohio Galvanizing & Mfg. Co.
F. H. Robinson

Pans (Dry and Wet).
(See Dry and Wet Pans.)

Paving Brick or Block.
(See Brick.)

Perforated Sheet Metal
Harrington & King Perf. Co.
F. H. Robinson

Pitch (Paving).
Barrett Mfg. Co.

Plows.
(See Scrapers.)

Portable Track.
American Clay Machinery Co.
International Clay Mach. Co.
Manufacturers' Equipment Co.
F. H. Robinson

Pottery Machinery.
American Clay Machinery Co.
Baird Machinery & Mfg. Co.
Crossley Machine Co.
Fate-Root-Heath Co.
International Clay Mach. Co.
Taplin-Rice-Clerkin Co.

Pottery Dryers.
Philadelphia Drying Mach. Co.

Powder.
Dupont, E. I. & DeNemours Co.

Power Plant Equipment.
American Clay Machinery Co.
Arbuckle & Co.
Rodgers Engr. Co., The L. E.

Presses.
(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Lancaster Iron Works
Manufacturers' Equipment Co.
Potts & Co., C. & A.
F. H. Robinson
Steele & Sons, J. C.
The Stevenson Co.
Toronto Foundry & Mach. Co.
Wallace Mfg. Co.

Pulleys.
(See Supplies.)

Pulverizers.
Arbuckle & Co.
American Clay Machinery Co.
Fate-Root-Heath Co.
Manufacturers' Equipment Co.
The Stevenson Co.

Pumps.
Potts & Co., C. & A.

Pyrometers.
Brown Instrument Co.
Engelhard, Charles
Rodgers Engr. Co., The L. E.
Thwing Instrument Co., The

Rails and Railway Equipment.
American Clay Machinery Co.
Ball Engine Co.
Fate-Root-Heath Co.
Richardson & Co.
Zelnicker Supply Co., W. A.

Rattlers (Paving Brick).
American Clay Machinery Co.
Freese & Co., E. M.
Phillips & McLaren Co.
F. H. Robinson

Represses.
American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
F. H. Robinson
Taplin-Rice-Clerkin Co.

Revolution Indicators.
Brown Instrument Co.
Engelhard, Charles
Thwing Instrument Co.

Revolving Steam Shovels.
American Clay Machinery Co.
Ball Engine Co., The

Road Graders.
Ball Engine Co., The

Rock Crushers.
American Clay Machinery Co.
Crossley Machine Co.
Manufacturers' Equipment Co.
Phillips & McLaren Co.
F. H. Robinson
The Stevenson Co.

Roofing Tile Machinery.
American Clay Machinery Co.
Fate-Root-Heath Co.
International Clay Mach. Co.

Rope.
(See Supplies.)

Rotary Dryers.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate-Root-Heath Co.
International Clay Mach. Co.
Lancaster Iron Works
Potts & Co., C. & A.

Sand Dryer and Sand Sieves.
American Clay Machinery Co.
Lancaster Iron Works.

Sand Lime Brick Machinery.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works
Ceramic Supply & Con. Co.
Chisholm, Boyd & White Co.
International Clay Mach. Co.
The Stevenson Co.

School of Ceramics.
Illinois University.
Iowa State College.
New Jersey State School.
New York State School.
Ohio State University.

Scrapers, Plows and Clay Gatherers.
Eagle Iron Works

Screens.
American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Carnell, Geo.
Chambers Bros. Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Harrington & King Perf. Co.
International Clay Mach. Co.
Manufacturers' Equipment Co.
F. H. Robinson
The Stevenson Co.

Sewer Digging Machines.
Ball Engine Co.

Sewer Pipe Machinery.
American Clay Machinery Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
The Stevenson Co.
Toronto Foundry & Mach. Co.

Shale Planers.
Arbuckle & Co.

Stacks.
Lancaster Iron Works.

Steam Gauges.
(See Supplies.)

Steam Shovels.
American Clay Machinery Co.
Ball Engine Co.

Steam Specialties.
American Clay Machinery Co.
Frost Mfg. Co.
Standard Dry Kiln Co.

Steam Traps.
American Clay Machinery Co.
Frost Mfg.Co.
Standard Dry Kiln Co.

Steel Pallets.
Ohio Galvanizing Co.
F. H. Robinson

Supplies.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons, H. W.
Carnell, Geo.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White
Crossley Machine Co.
Eastern Brick Machinery Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
Frost Mfg. Co.
International Clay Mach. Co.
Lancaster Iron Works.
Manufacturers' Equipment Co.
Potts & Co., S. & A.
F. H. Robinson
Steele & Sons.
Toronto Foundry & Mach. Co.
Wallace Mfg. Co.

Switches.
American Clay Machinery Co.
F. H. Robinson

Tanks and Towers.
Lancaster Iron Works.

Tempering Wheels.
Carnell, Geo.
International Clay Mach. Co.

Thermometers.
Brown Instrument Co.
Engelhard, Charles
Rodgers Engr. Co., The L. E.
Thwing Instrument Co.

Tile Machines.
American Clay Machinery Co.
Anderson Fdy. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Crossley Machine Co.
Fate-Root-Heath Co.
Freese & Co., E. M.
International Clay Mach. Co.
Manufacturers' Equipment Co.
Potts & Co., C. & A.
F. H. Robinson
The Stevenson Co.
Wallace Mfg. Co.

Time Recorder
Brown Instrument Co.
Engelhard, Charles
Thwing Instrument Co.

Tracks and Switches.
(See Rails.)

Transfer Cars and Turn Tables.
(See Supplies.)

Trench Machines.
Ball Engine Co.

Turn Tables.
American Clay Machinery Co.
F. H. Robinson

Unloading Device for Pans.
American Clay Machinery Co.
Frost Mfg. Co.
International Clay Mach. Co.
Manufacturers' Equipment Co.
The Stevenson Co.

Voltmeters.
Brown Instrument Co.
Engelhard, Charles.
Thwing Instrument Co.
Westinghouse Elec. & Mfg. Co.

Wattmeters.
Westinghouse Elec. & Mfg. Co.

Wheels and Axles.
(See Supplies.)

Wheelbarrows.
(See Barrows.)

Wet Pans.
(See Pans.)

Wire.
(See Cutting Wire.)

Three Big Profits from The Galion Industrial Unloader

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Time required for unloading fuel is reduced to 2 or 3 hours per car.

Time required for shoveling from ground to wagon is eliminated entirely.

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Labor required for unloading fuel by the carload is reduced to one man. The driver loads his own wagon, eliminating all hand shoveling.

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The saving in time and labor results in a big saving in money—fuel handling costs are reduced from 25c to 35c to 2c to 4c per ton, depending upon local conditions.

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There's a size and type to meet every unloading requirement of clayworking plants.

Every one is guaranteed to be a money saver and a profit maker.

Galion Industrial Engineers will be glad to consult with you on your fuel handling problems. This service is free to you and incurs no obligation.

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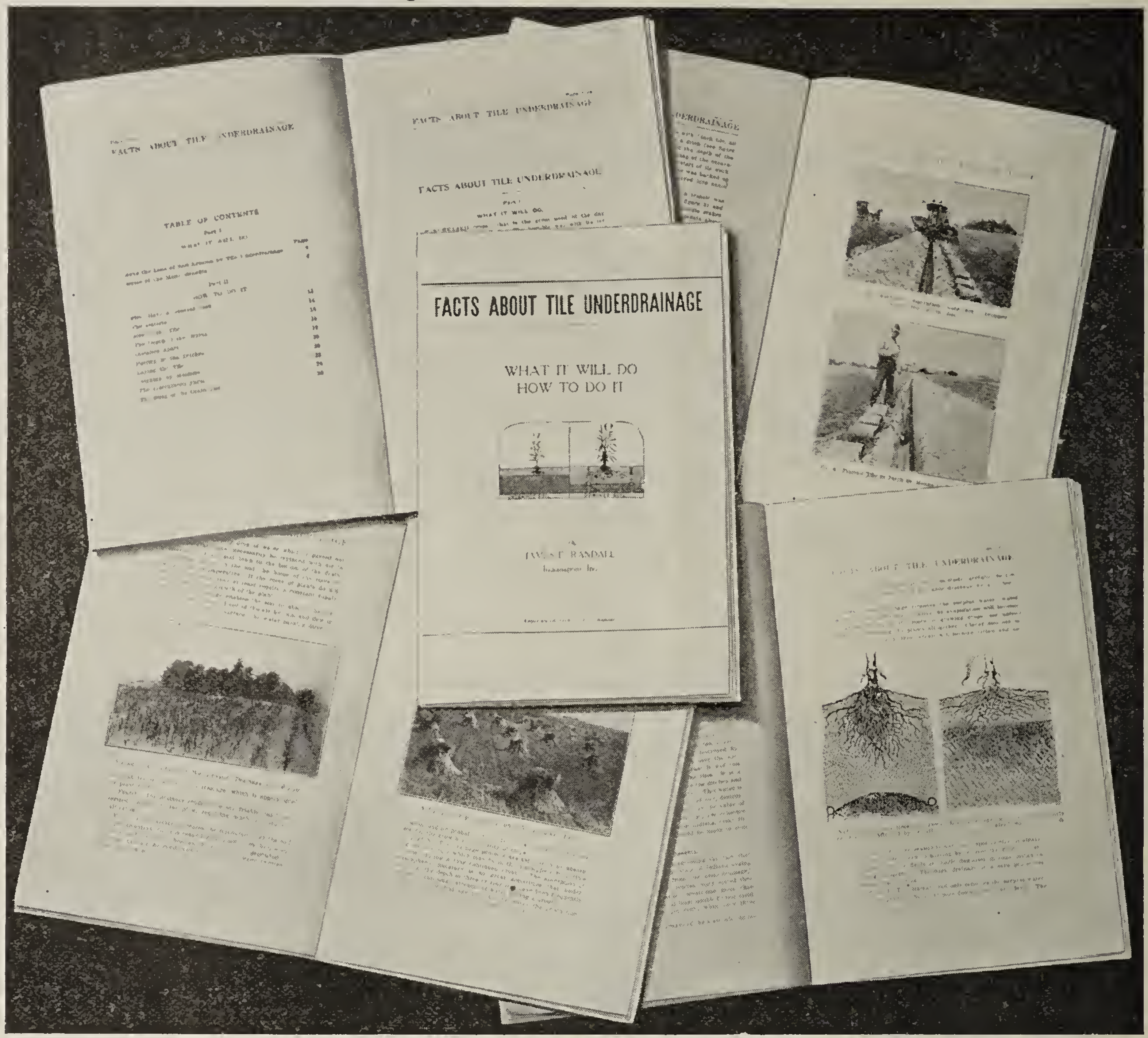
Industrial Division

THE GALION IRON WORKS & MANUFACTURING CO.,
204 Wyandot Bldg., Galion, Ohio.



FACTS ABOUT TILE UNDERDRAINAGE

WHAT IT WILL DO
HOW TO DO IT

JAMES E. RANDALL
Indianapolis, Ind.

FACTS ABOUT TILE UNDERDRAINAGE

WHAT IT WILL DO. HOW TO DO IT.

By JAMES E. RANDALL.

This is the most comprehensive pamphlet ever published on the subject, giving the many benefits and all the details relative to the installation of drain tile systems. It is printed in convenient form for mailing. A liberal distribution in your territory among prospective customers will greatly increase the demand for your product and at the same time give the farmers just what they have been looking for in regard to ways and means of putting in the drains.

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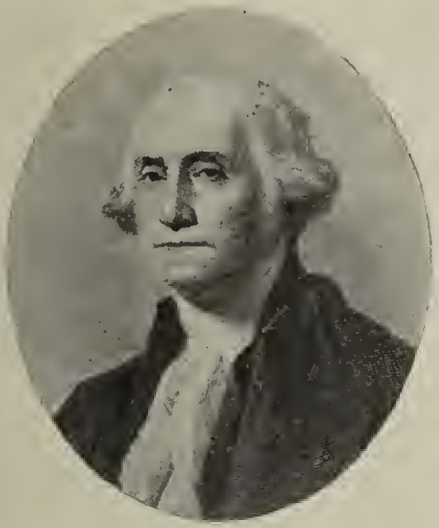

Nothing but harmony, honesty, industry, and frugality are necessary to make us a great and happy people.--**George Washington in a letter to Lafayette.**

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KUSHEQUA

Highly Vitrified by Natural Gas.
Tough Paving Blocks, Beautiful in Color and Finish.
KUSHEQUA BRICK CO., Kushequa, Pa.

PROMENADE TILE

Chocolate Red
Highest Vitrification—Lowest Absorption.
BEST BY TEST.
KUSHEQUA KERAMIC COMPANY,
Kushequa, Pa.

FIRE BRICK

DOVER FIRE BRICK CO.
Incorporated 1870
Manufacturers of North Bend, Dover and Buckeye Brands.
GROUND FIRE CLAY
Unexcelled for Kiln Purposes
509 Cuyahoga Bldg. CLEVELAND. OHIO

VITRIFIED PAVING BRICK

A valuable treatise on the manufacture and use of Paving Brick up to date. By H. A. Wheeler, E. M. Second edition.

Mailed to any address on receipt of $2.00.

T. A. Randall & Co. (Inc.) Publishers
Indianapolis

ALTON BRICK COMPANY

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Wire-Cut-Lug Block.
ALTON, ILLINOIS

The Danville Brick Company
Manufacturers of the Unsurpassed

Danville Paving Block

Danville, Ill.
LET US QUOTE YOU PRICES.

McAVOY VITRIFIED BRICK COMPANY

PHILADELPHIA, PA.
"McAVOY BLOCK"

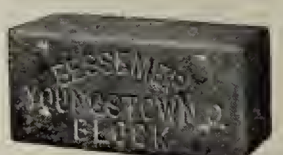
Townsend Paving Block

Repressed Wire-Cut Lug
Vertical Fibre Hillside
RAINBOW ROUGH TEXTURE BRICK
COMMON BUILDING BRICK
BAKUP TILE
Manufactured by

The Burton-Townsend Co
Zanesville, Ohio.

Best Paving Brick Made

DAILY
CAPACITY
1,000,000
BRICK



The Metropolitan Paving Brick Co.
CANTON, OHIO

SERVICE FIRST!

IRONSTONE BLOCK

OFTEN RATTLED BUT NEVER EMBARRASSED

A BLOCK OF THE IRONSTONE QUALITY IS ECONOMY

REPRESSED OR DUNN WIRE-CUT-LUG

Terre Haute Vitrified Brick Co.
TERRE HAUTE, IND.

Murphysboro Paving Brick Company

Manufacturers of

The Celebrated

EGYPTIAN PAVING BLOCK

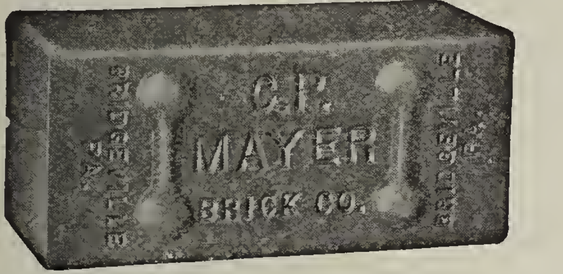
The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

C. P. MAYER BRICK CO.

BRIDGEVILLE, PA.



The Mayer Block is guaranteed to be free from all lamination, and the company will contract for delivery on a 20% abrasion test, or better, if necessary.

PURINGTON PAVERS
ARE MADE OF

GALESBURG SHALE

PURINGTON PAVING BRICK CO.
GALESBURG, ILL.

Have You Something To Sell ?

PLACE A SMALL AD

IN THE
CLAY-WORKER.

You will be surprised how quickly you will make the sale or the purchase.

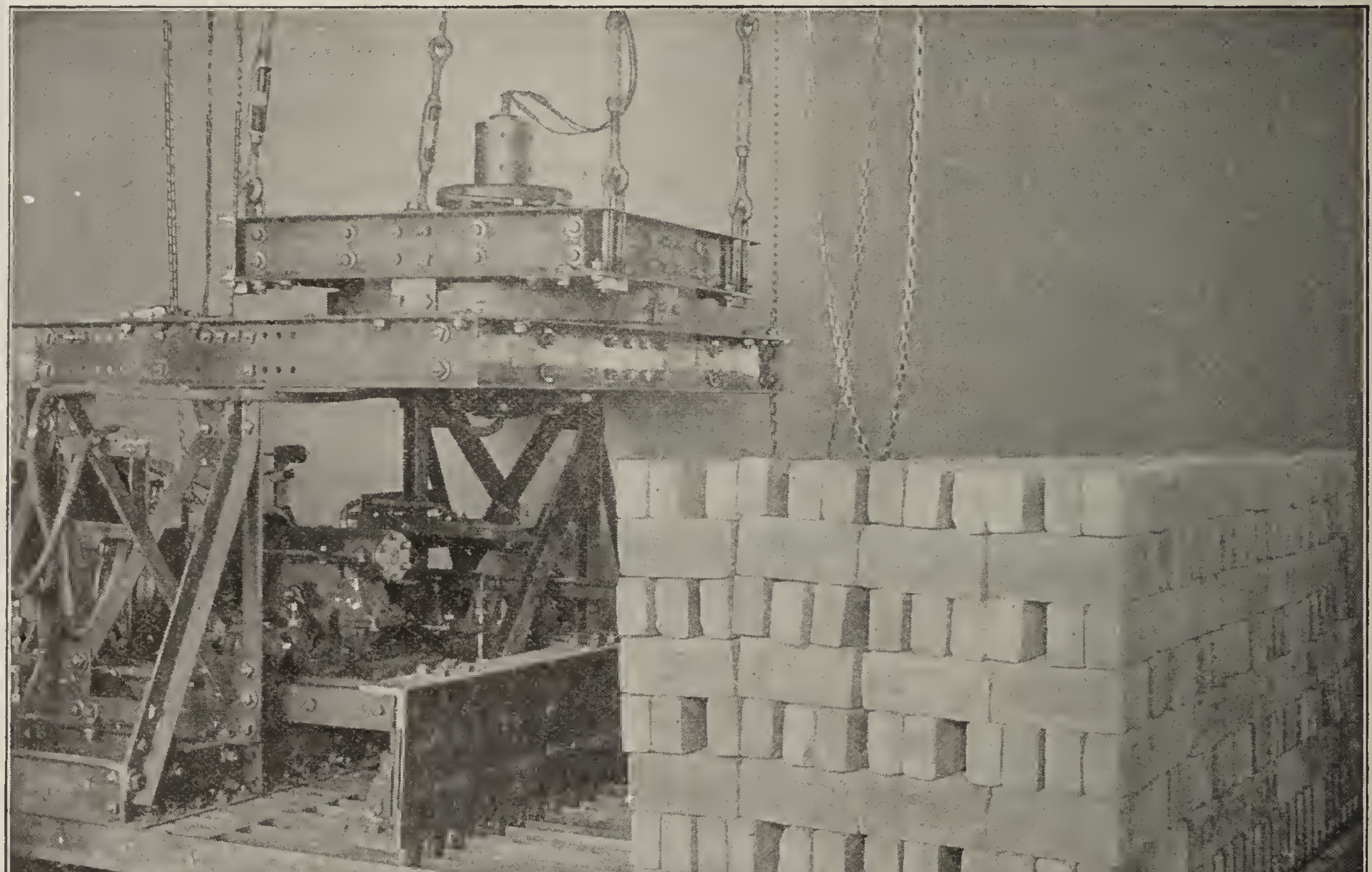
It Cost But 35 Cents The Line
See Page 564.

Are You In The Market For Second Hand Machinery Or Equipment

Labor-Saving Devices Must be Used to Solve the Labor Shortage. You Can Save Labor With

THE DICKINSON BRICK SETTING MACHINE

The need of labor-saving devices has always been recognized by manufacturers in the clay industry. It has been especially difficult to obtain labor for setting brick; first, because of the skill required in setting; second, because of the physical strain and endurance required, and, third, because of the dirt and unpleasantness of the work. This difficulty has been gradually increased until in the present strenuous times it is actually becoming impossible to get men to do this work. Our machine fills a long felt want.



This photograph shows a side view of the setting machine and a unit of brick hacked on a dryer car ready to be set in the kiln. The fingers being guided between and under the bricks by the strips on the dryer car. Note spacing of lower course of bricks same as all of the others.

This machine will set any brick that are dry enough to stand up as they pass through the dryer.

THE DICKINSON BRICK SETTING MACHINE

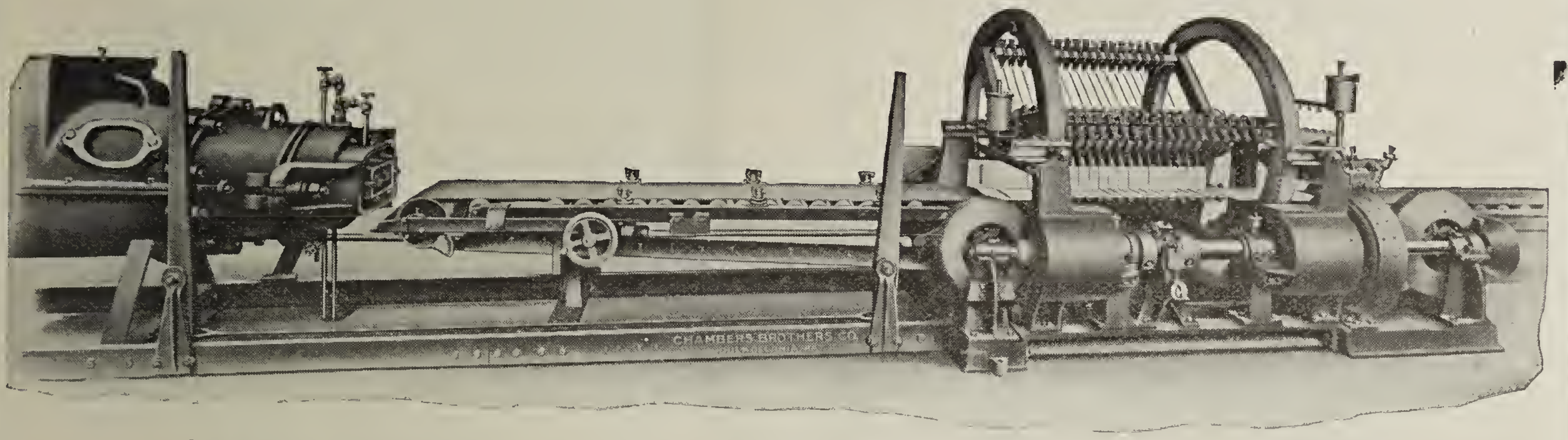
W. W. Dickinson, Jr.
1612 Battery St., Little Rock, Ark.

This machine is fully protected by patents and by additional patents pending.

The many merits of this machine can not be told in a single page. Let us send you detailed information.

Chambers Bros. Co., Philadelphia, Pa.

Clayworking Machinery Developed
Through a Careful Consideration of the Criticisms of
Experienced Brick Manufacturers.



MULTIPLE BRICK CUTTER No. 10

THE BRICK CUTTER THAT DOES NOT SWELL THE CLAY=BAR

The following representative concerns in the clayworking industry are among our customers for this particular cutter.

The Western Brick Co.,	Danville, Illinois
The Kier Fire Brick Co.,	Pittsburgh, Pa.
The Kittanning Brick & Fire Clay Co.,	Pittsburgh, Pa.
Watsontown Brick Co.	Watsontown, Pa.
Huntington Clay Products Co.	Huntington, W. Va.
Sayre & Fisher Co.,	Sayreville, N. J.
W. G. Bush & Co.,	Nashville, Tenn.
Bloomsburg Brick Co.,	Bloomsburg, Pa.
The Mill Hall Brick Works	Mill Hall, Pa.
The Reynoldsville Brick & Tile Co.,	Reynoldsville, Pa.
The Excelsior Brick Co.,	Fredonia, Kan.
The El Paso Brick Co.,	El Paso, Texas
The National Fire Proofing Co.,	Port Murray Works, N. J.
Yankee Hill Brick Mfg. Co.,	Lincoln, Neb
Darlington Clay Products Co.,	Darlington, Pa.

A Merry Christmas

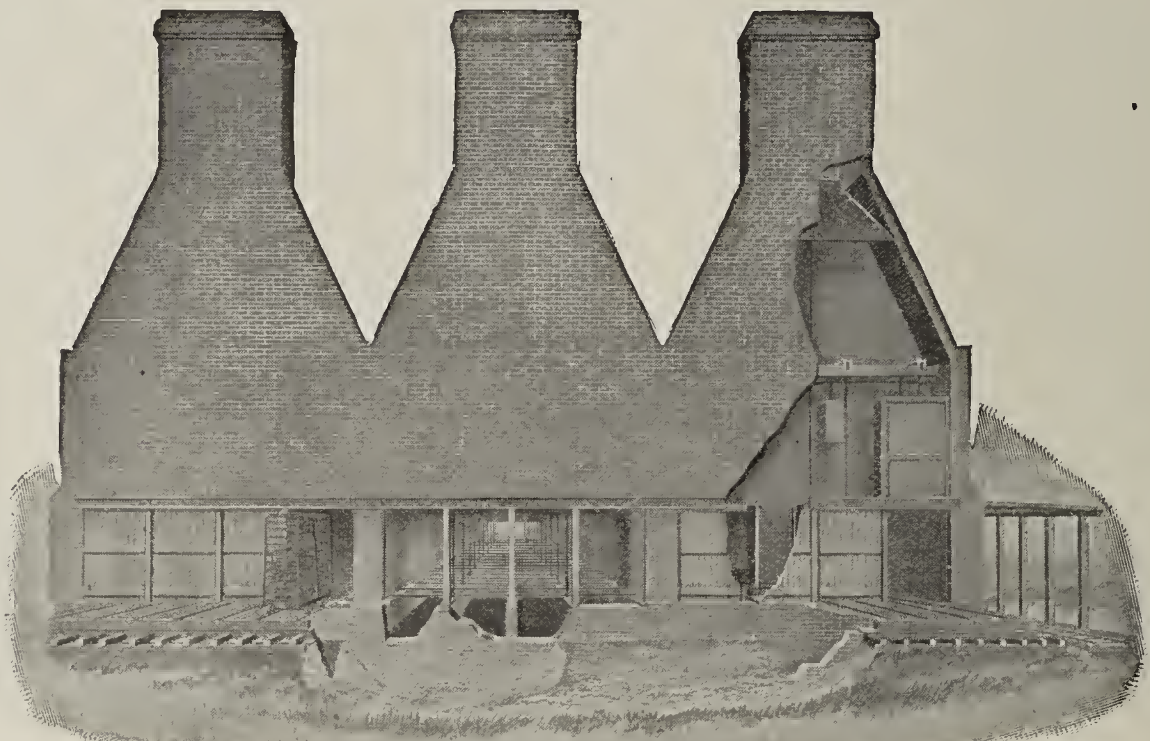
to our many friends--!

We feel sure that it will be because we know that you are prospering as indicated by the tremendous volume of business and the big percentage of repeat orders given us during the past year for

THE STANDARD

Natural Draft

STEAM BRICK DRIER



Dependable Daily Output regardless of weather is what our users have - all brick makers want this, especially for next year's big demands - it will pay others to investigate - start now to get ready - ask for our catalog - address:

THE STANDARD DRY KILN CO.

1547 McCarty St. Indianapolis, Ind.

With Chase Flexible and Reversible Bearing and Folding Deck.

Single, Double and Triple Deck Dryer Cars, Transfer and Dump Cars, Turntables, Switches and Trackage.

The Chase Foundry & Mfg. Co., Columbus, O.

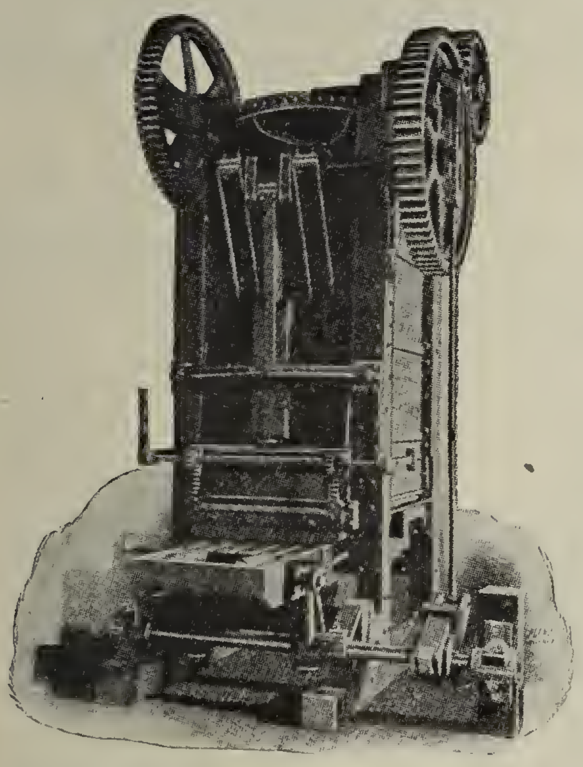
DO YOU WANT

Any Thing Used On A Brickyard or a Clay Plant.

We Handle it.
Ask Us.

CHICAGO BRICK MACHINERY CO.

2825 W. Harrison St. Chicago Ill.



Send for our new catalog of
Brick Machines Pug Mills,
Single and Compound Disintegrators,
Granulating Clay Feeders.
Sanders Sand Dryers
Sand Grinder and Sifters,
Winding Drums and Clay Cars,
Portable Cable Conveyor Systems.
Pipe Rack Dryers,
Rotary Dryers, Tunnel Dryers,
Tanks and Stacks.
Repairs for "Martin" machines.

LANCASTER IRON WORKS, Inc.,

New York Office,
501 Fifth Avenue,

LANCASTER, PENNSYLVANIA.
Join, The National Brick Manufacturers' Association, and The Common Brick Manufacturers' Association.

Jas. P. Martin, Manager,
Clay Working and Foundry Machinery Department.

Brick manufacturers who have anything in the way of second-hand machinery or appliances, will find a ready market for same through a card in our Classified Advertisements. Superintendents, yard foremen, burners, etc., desiring to make a change, will do well to run a Wanted ad in our classified department. Clay-Worker ads bring results.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brickmakers' Use.

ECLIPSE MORTAR COLORS,

Red, Brown, Buff, Black.

MANGANESE

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.
LYNCHBURG, VA.

MINERS AND GRINDERS.

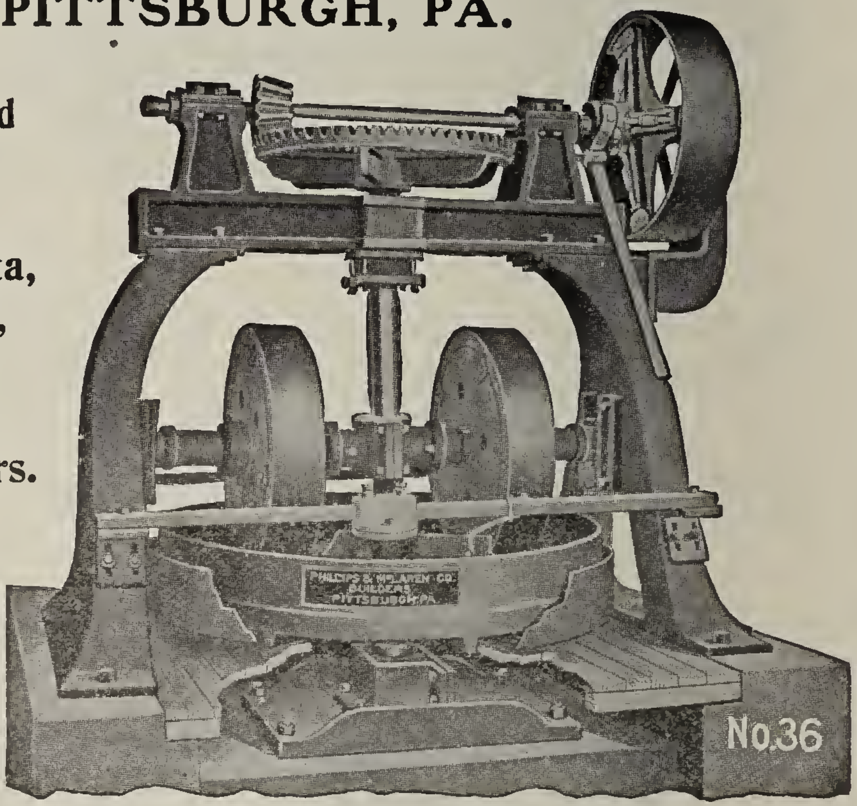
PHILLIPS & McLAREN CO.

PITTSBURGH, PA.

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for prices state kind of Clay or Material to be ground and capacity desired.

Eastern Sales Office
Stephen Girard Bldg.
Philadelphia, Pa.


PHILLIPS & McLAREN CO. BUILDERS PITTSBURGH PA.
No.36

THE ROESSLER & HASSLACHER
Chemical Company
New York

PREVENT SCUMMING
by treating your
BRICK & TERRA COTTA CLAY PRODUCTS
during process of manufacture with our
PRECIPITATED CARBONATE BARYTES

Make Your Slogan
"SCUMPROOF PRODUCTS."
Write for literature.

BRANCHES

Cleveland,	Ohio
Chicago,	Ill.
Cincinnati,	Ohio
Kansas City,	Mo.
St. Louis,	Mo.
Boston,	Mass.
Philadelphia,	Pa.
New Orleans,	La.
San Francisco,	Cal.

HIGH GRADE CHEMICALS
COLORS and OXIDES
for
Brick, Terra Cotta
Tile, Clay Products
Also
Pottery, Glass
And Enameled Ware

OAK HILL
GAS RETORT
AND
FIRE BRICK
WORKS

The Parker-Russell
Mining and Manufacturing Co.
ST. LOUIS, U. S. A.

Fire Clay and Silica Products of Quality for Service— Especially for Kiln Construction.

BOOKS FOR BRICKMAKERS.

ECONOMIES IN BRICKYARD CONSTRUCTION AND OPERATION
By Ellis Lovejoy, E. M., Price $1.00.

EFFECT OF HEAT UPON CLAYS,
By Prof. A. V. Bleininger, Price $2.00

DRYING OF CLAYWARES,
By Ellis Lovejoy, E. M., Price $2.00.

SCUMMING AND EFFLORESCENCE,
By Ellis Lovejoy, E. M., Price .50c.

MODERN BRICKMAKING,
By Alfred B. Searle, Price $6 00

T. A. RANDALL & CO., Publishers, Indianapolis.

If...

You Want to Sell or Buy...

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

If... You Want a Man

for any position or a position in any connection with the Clayworking Trades use the

For Sale and Want Columns of...

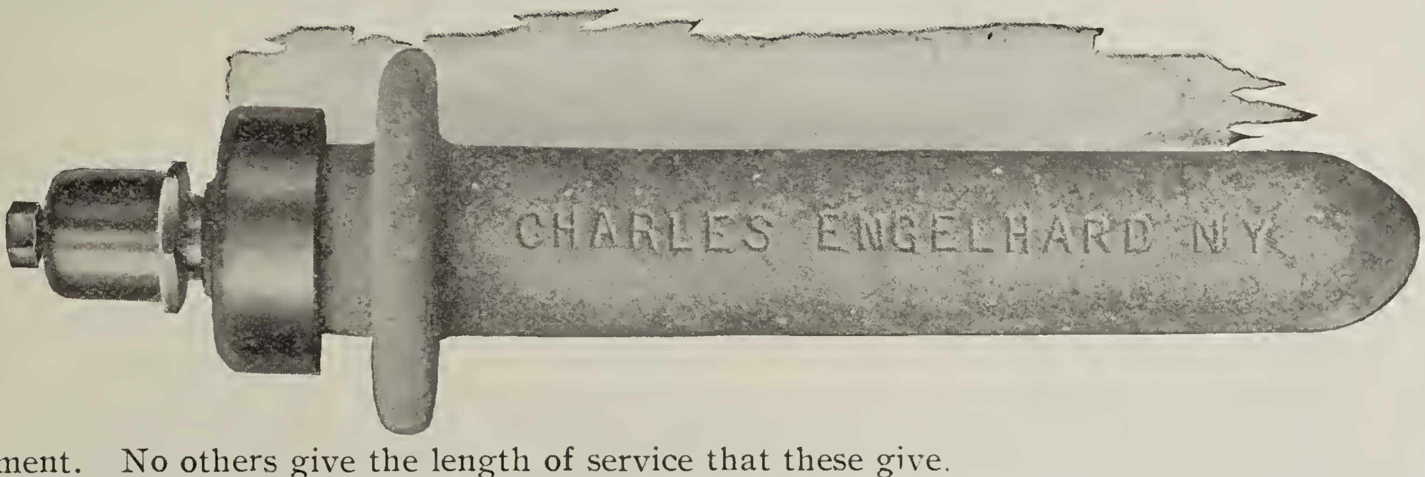
The... Clay-Worker.

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of six words to line.

The Best, Quickest, Cheapest Method of Securing Results.

"Engelhard" Le Chatelier *the Ultimate* Pyrometers



Stand today as they have for the past twenty-five years as the leaders of their class.

No others are so accurate or so thoroughly interchangeable.

None are so easy to use or so practical for severe high temperature measurement. No others give the length of service that these give.

Their slightly higher first cost is due wholly to actual material involved. For example, the Platinum and Platinum Rhodium Thermo Elements are a third heavier, length for length, than most others.

The advisability of putting this extra small amount into the first cost is proven by the fact that the maintenance cost on Heraeus Pyrometers rarely exceeds five per cent.

Bulletin No. 17 TELLS YOU MORE **CHARLES ENGELHARD** *30 CHURCH ST. New York*

BAIRD

POT MOLDING MACHINERY

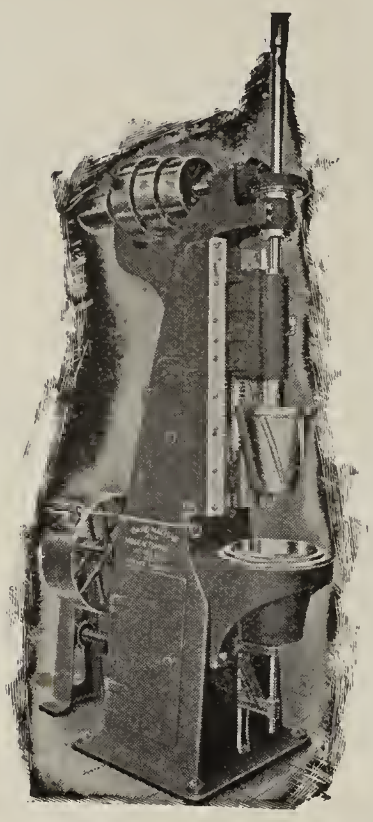
These Machines in Addition to the Manufacturing of Flower Pots Can Be Used for

Stone Ware	Saggers
Crucibles	Sleeves
Runner Brick	Nozzles

We specialize machines for the Manufacture of Pottery and Guarantee every one we sell.

Write us for information

Baird
Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.



Books for Brickmakers

These Books Will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

CLAYS; THEIR OCCURRENCE, PROPERTIES AND USES	Heinrich Ries	5.00
VITRIFIED PAVING BRICK	H. A. Wheeler, E. M.	2.00
TABLES OF ANALYSES OF CLAYS	Alfred Crossely	2.00
PRACTICAL FARM DRAINAGE	C. G. Elliott	2.00
ENGINEERING FOR LAND DRAINAGE	C. E. Elliott	1.50
TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

T. A. RANDALL & CO.
INDIANAPOLIS, IND.

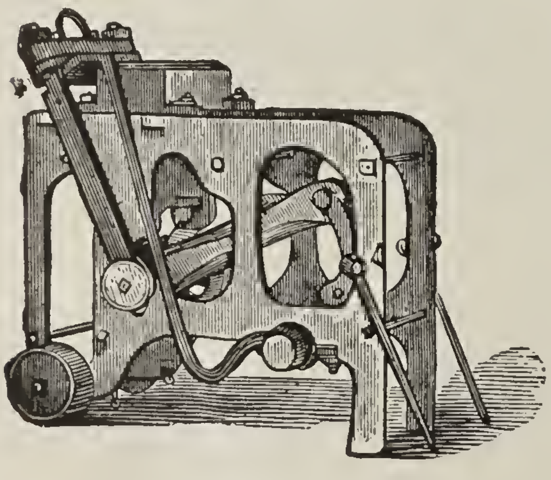
BUILD WITH BRICK

THE EVERLASTING MATERIAL

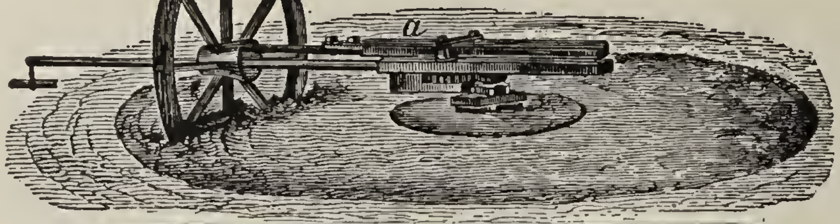
Philadelphia Brick Machine Works.

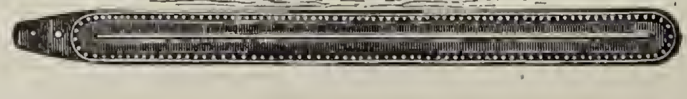
Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



RED BRICK PRESS.





These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

☞ Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA. PA.

We Can Save You Money, Time and Trouble on WIRES

Let us send you samples and prices.
Daily capacity, 20,000 finished wires.

The Mittler Wire Mfg. Co.
Robbins, Tenn.

The "A" Erie weighs 13 tons, and operates a dipper of ½ cu. yd. capacity.

The "B" Erie weighs 20 tons, and operates a dipper of ¾ cu. yd. capacity.

Save money digging your raw material

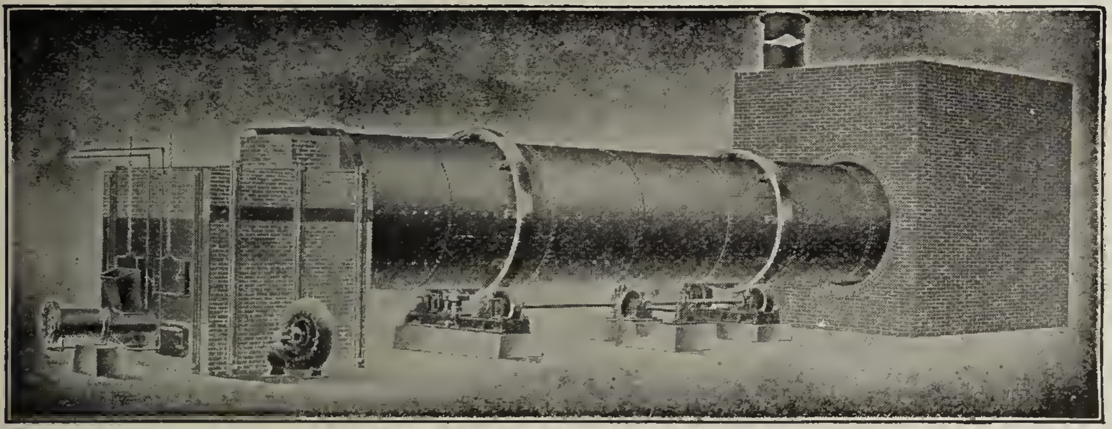
We will be glad to estimate for you the saving that you can make by excavating your clay and shale with an Erie Shovel. Whether your capacity is large or small there is an Erie Shovel suited to your work. The "A" Erie has a rated capacity of 30 to 40 cu. yds. of material per working hour (this output is often exceeded).

The "B" Erie has a rated capacity (often exceeded) of 50 to 60 cu. yds. per hour.

Both "A" and "B" Eries dig stiff clays and shales without blasting. The Erie Shovel is built far stronger than the usual standard of steam shovel construction. It is *RELIABLE*. **Write for a copy of our Bulletin W.**

BALL ENGINE CO., Erie, Pa.
Builders of Erie Steam Shovels and Cranes, Ball Engines.

ERIE Revolving Shovels
BALL Engine Co. Erie, Pa.



ROTARY CLAY DRYER
"MATERIAL CARRIED IN STOCK FOR STANDARD SIZES."

DRY YOUR CLAY

AT LOW COST

YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON

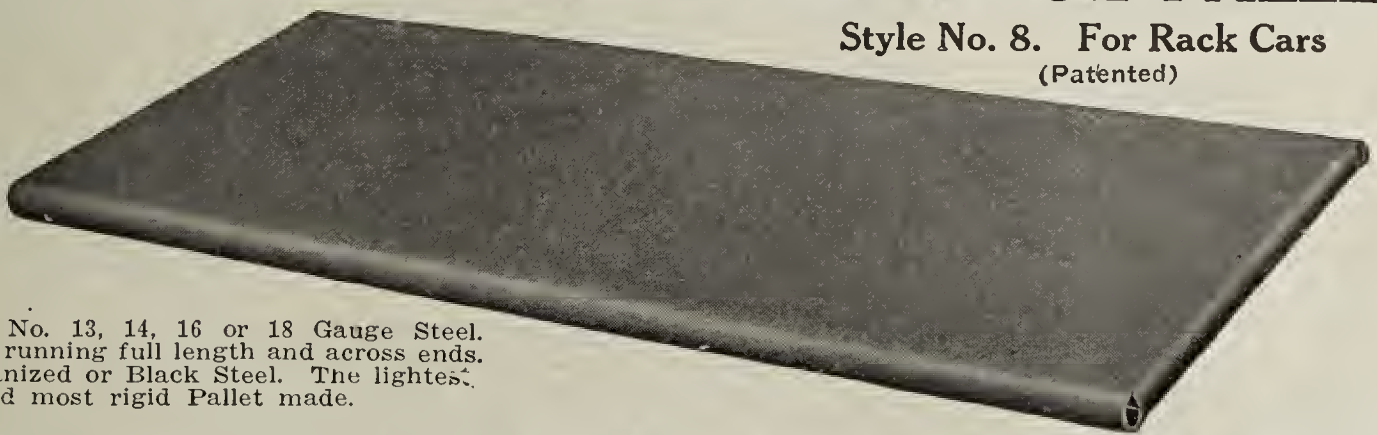
It Assures Uniform Product

YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

American Process Co.
68 Williams Street
NEW YORK

"OHIO" ROLLED EDGE STEEL BRICK PALLET

Style No. 8. For Rack Cars
(Patented)



Made from No. 13, 14, 16 or 18 Gauge Steel. ⅝-inch Roll running full length and across ends. Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING CO., Niles, Ohio

HOW

Can we convince the owner, manager or promoter of a plant for the manufacture of clay products that to decide upon design of plant, type or form of dryer or kiln or machinery equipment without investigating what we have to offer, is not doing justice to himself nor to his associates?

Do not be **sold** but **buy**—after investigation and intelligent selection.

CONTINUOUS KILNS A SPECIALTY

ENGINEERING SERVICE BY W. D. RICHARDSON.

THE CERAMIC SUPPLY & CONSTRUCTION Co.

2782 North High St., Columbus, Ohio

Just issued, **Bulletin No. 1**—"*Engineering Service to the Clay Industries.*"

Sent to all who are interested.

Thwing Pyrometers

Replaced Others When Greater Accuracy was Required

"To indicate the temperature at the top and bottom of the superheater, * * * indicating pyrometers were originally installed. During the last year, on account of the poor oil and fuel which were obtainable, much more careful operation of the machines was demanded, and Thwing recording pyrometers were installed, which made a record of the temperature at three points, namely: the middle of the carbureter and top and bottom of the superheater. These instruments are installed in a little dust-proof room just off the operating floor and have given great satisfaction."

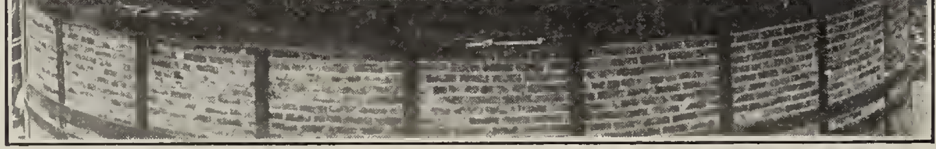
—*Chemical and Metallurgical Engineering, July* 15, 1919, *page* 88.

Thwing Instrument Co

Lancaster Ave. and Cuthbert St., Philadelphia, Pa.

69

UNIFORM BURNING AND UNIFORM QUALITY OF CLAY PRODUCTS



SIL-O-CEL insulating brick applied to crown of ceramic kiln.

can be obtained by proper kiln insulation.

Many kilns are losing 40% of their heat through radiation—couple this with rejection losses, due to lack of heat uniformity, and we see why the cost of production is so high.

SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

Insulation possesses all the necessary qualifications for successful kiln insulation and has been adapted by numerous companies with highly profitable results.

If your kilns are not operating economically, send for our literature and let our engineers suggest the proper method of insulating your kilns. Write for Bulletin on Kiln Insulation.

CELITE PRODUCTS COMPANY

NEW YORK
11 Broadway

PITTSBURGH
Oliver Building

CHICAGO
Monadnock Building

LOS ANGELES
Van Nuys Building

SAN FRANCISCO
Monadnock Building

A LABOR SAVING DEVICE

OUR ONE-MAN TRUCK—

the Invincible Truck—should be used on every sewer pipe plant in this country. Saves labor, time and trouble.

Adjustments are made in two minutes for changing to different size boards.

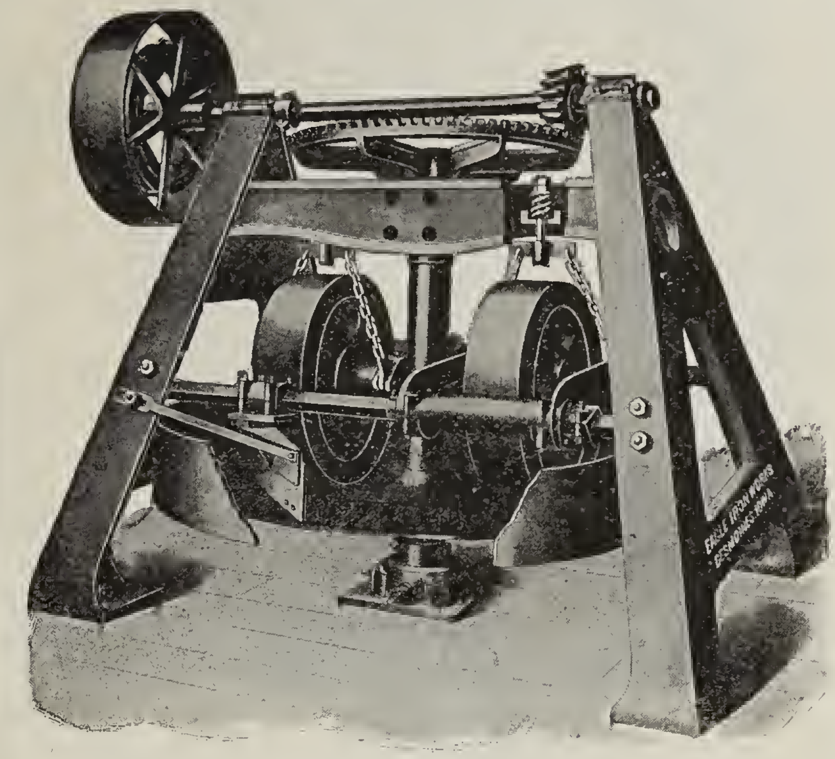
One man can handle 30-in. pipe with case

Positively no load on handles and no triggers on the lift.

TORONTO FOUNDRY & MACHINE CO.
Toronto, Ohio

Independent and Suspended Mullers

the distinguishing feature of our **DRY PANS**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS
Des Moines, Iowa

WESTINGHOUSE MOTOR DRIVE for BRICK and CLAY PLANTS.

The progressiveness of the Electrical Engineer in constantly improving the apparatus and methods of applying it, has been responsible, to a large extent, for the reliable and increasing service rendered industries by electricity.

Westinghouse Engineers are always studying the conditions of various plants. Guess work is eliminated and desired results are secured.

The illustration shows a 200 h.p. Westinghouse type "CW" motor driving brick machines at the Terro Brick Plant, Watsontown, Pennsylvania.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY

East Pittsburgh, Pa.
Sales Offices in All Large American Cities.

Westinghouse

W. B. WILSON,
Secretary of Labor,

SAYS—

We are Proceeding by Evolution Not by Revolution

WHILE THE USE OF FORCE TO OVERTHROW AUTOCRACY MAY BE THE HIGHEST KIND OF PATRIOTISM

THE USE OF FORCE TO OVERTHROW A DEMOCRACY IS TREASON TO THE MASSES OF THE PEOPLE

ISSUED BY THE
BABSON BUREAU OF INDFORMATION
ON GOVERNMENT ACTIVIES
10 JACKSON PLACE WASHINGTON, D. C.

ELLIS LOVEJOY, E. M.,
CONSULTING ENGINEER
The Clay and Refractory Industries
210 SCHULTZ BUILDING
COLUMBUS, OHIO

Thirty three years experience in the manufacture of clay wares and in engineering work.

Geological Examination of Properties
Tests of Clays.

Reports on the Possibilities of Clay Projects.
Investigations of Factory Operations.
Development of Products.

Plans and Specifications for New Factories.
Improvements in Kilns and Dryers.
Modernizing Old Factories.
Appraisals of Properties and Factories.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price $2.50.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price $6.00

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price $5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

The Effect of Heat Upon Clays, by Prof. A. V. Bleininger. Price $2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Hollow Tile House, by Fred'k Squires. Price $2.50.

A book in which the reader is introduced to HOLLOW TILE in the making; how it is wrought into houses, etc., and is profusely illustrated with 215 designs.

Practical Farm Drainage, by C. G. Elliott. Price $1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price $2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Engineering for Land Drainage, by C. G. Elliott. Price $2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands, intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Land Drainage, by J. L. Parsons. Price $1.50.

A treatise on the design and construction of open and closed drains.

Economies in Brickyard Construction and Operation, by Ellis Lovejoy, E. M. Price $1.00.

Points out economical methods for every department of the business. Is practical and covers the field thoroughly.

Drying Clay Wares, by Ellis Lovejoy, Author of Economies in Brickyard Construction and Operation, and Scumming and Efflorescence. Price, $2.00.

This is a splendid treatise covering every phase in the drying of any kind of clay ware.

Scumming and Efflorescence, by Ellis Lovejoy, E. M. Price 50 Cents.

A book of authority, giving the cause and remedy of scum and efflorescence.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, $3.00; in lots of 1,000, $25.00.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price $2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

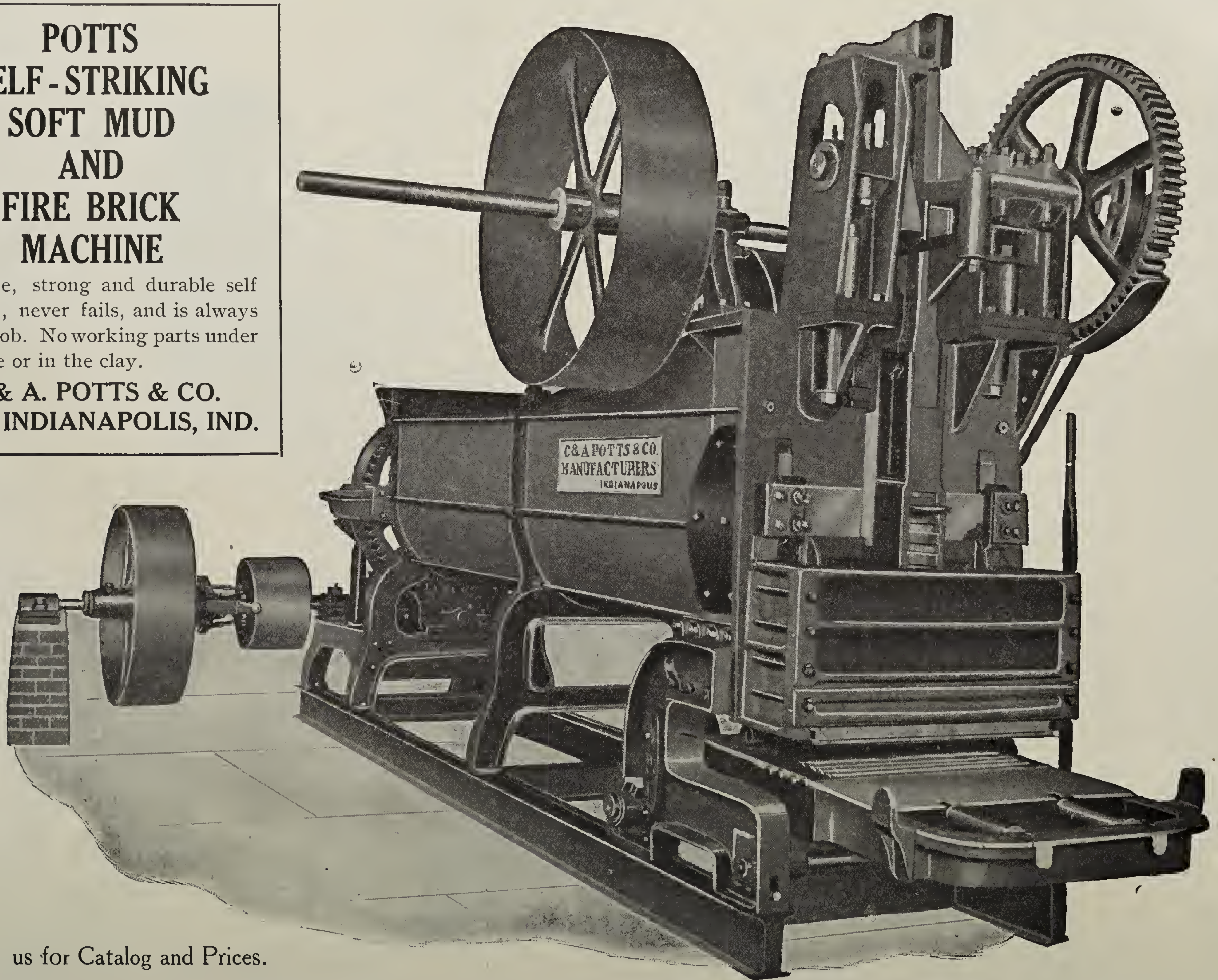
T. A. RANDALL & CO.

Indianapolis, Ind., U. S. A.

POTTS SELF-STRIKING SOFT MUD AND FIRE BRICK MACHINE

Simple, strong and durable self striking, never fails, and is always on the job. No working parts under machine or in the clay.

C & A. POTTS & CO.
INDIANAPOLIS, IND.



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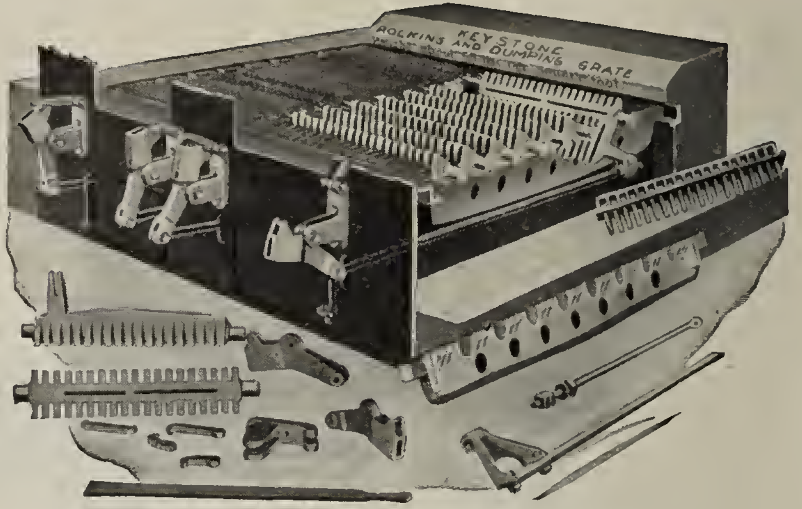
OUR PRODUCTS HAVE QUALITY—WE BACK UP OUR EQUIPMENT WITH A GUARANTEE—PRICES RIGHT.

Alexander Patent Water Gauge

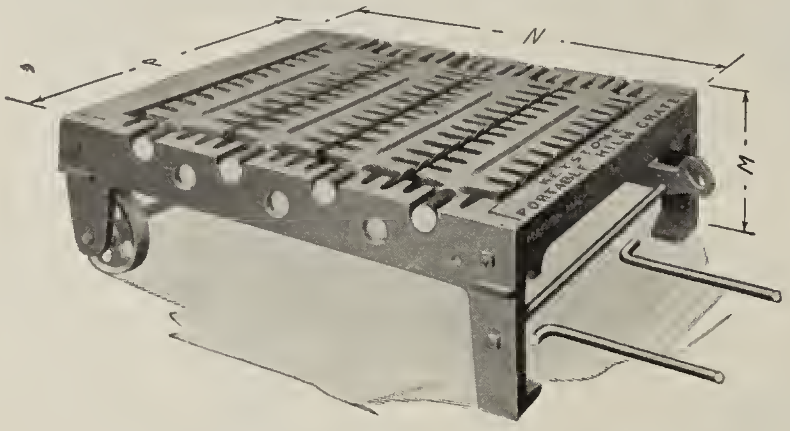
$1.45

$1.45

You can end your water gauge troubles by putting this on your boilers. All for $1.45.
Subject to return if not satisfied.



This Grate is especially adapted for low burning, ''clinkering'' Coal, especially slack or screenings —it burns them so effectually that it makes them give a full day's run without cleaning through fire doors. Its working principle is such that the fireman can handle and control his fires WITHOUT THE USE OF SLICE BAR OF POKER.



Keystone Portable Kiln Grate.

The superiority of the Shaking Grate over the stationary type is firmly established. Send for positive proof.

You Need This Wire Twister

Because you cannot get the same results without it. Not only twists the wire better, making the loop stronger than when done by hand, but does it so quickly, it soon pays for itself in TIME alone Will ship anywhere on approval, charges prepaid Place your order with us now.

$5.00

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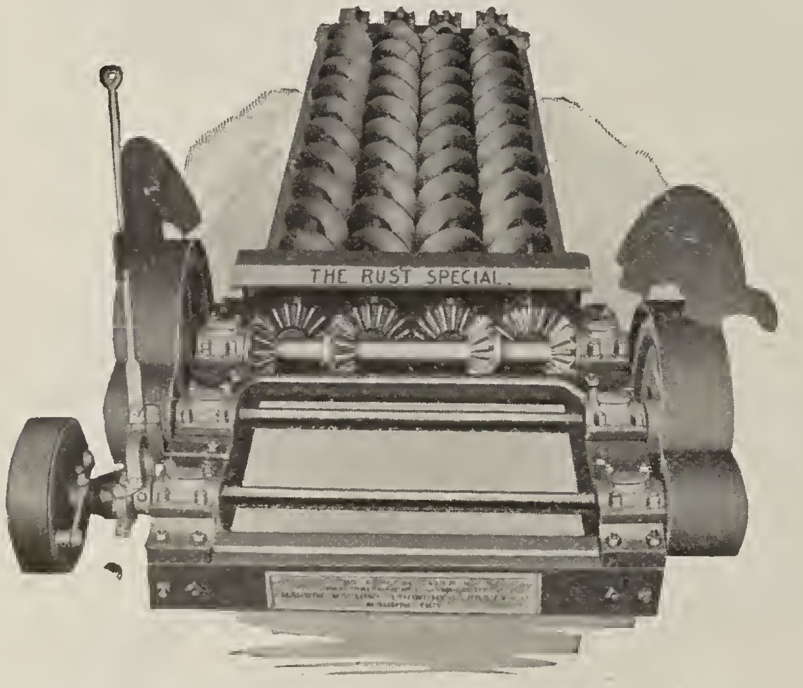


"Rust" Special Clay Feeder and Mixer

This machine is built so strong you can dump several car loads of clay on top of the machine and it will operate automatically, needing no further attention. It merits investigation.

MARION LEADERS

Write for our 68-page Catalog

"Marion Power Plant Equipment"

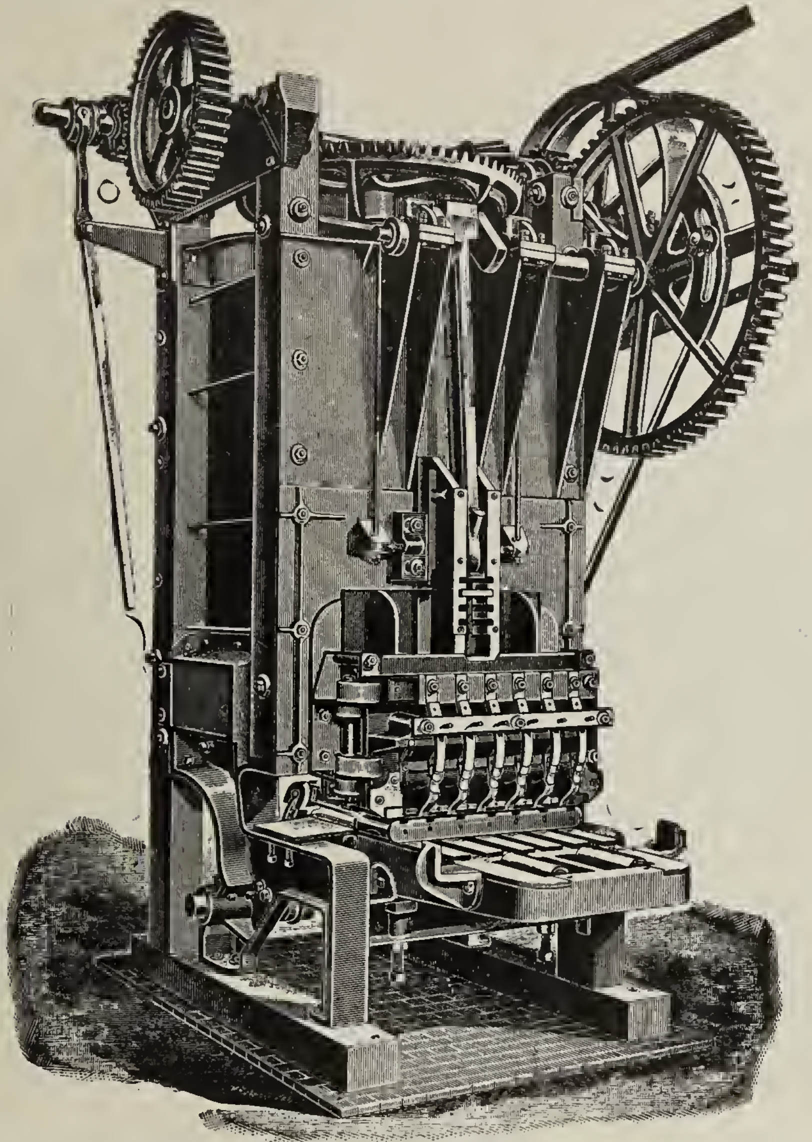
It contains much valuable Information

MARION MACHINE FOUNDRY & SUPPLY Co.

P. O. Box 156 **Marion, Indiana.**

EARNING CAPACITY

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefore, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.



"NEW HAVEN" VERTICAL BRICK MACHINE.

Because of their simplicity. unusual strength and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about the matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

TURN FAILURE INTO SUCCESS

With the Wonder Machine

A Machine of Large Capacity. Unequaled in Record of Durability

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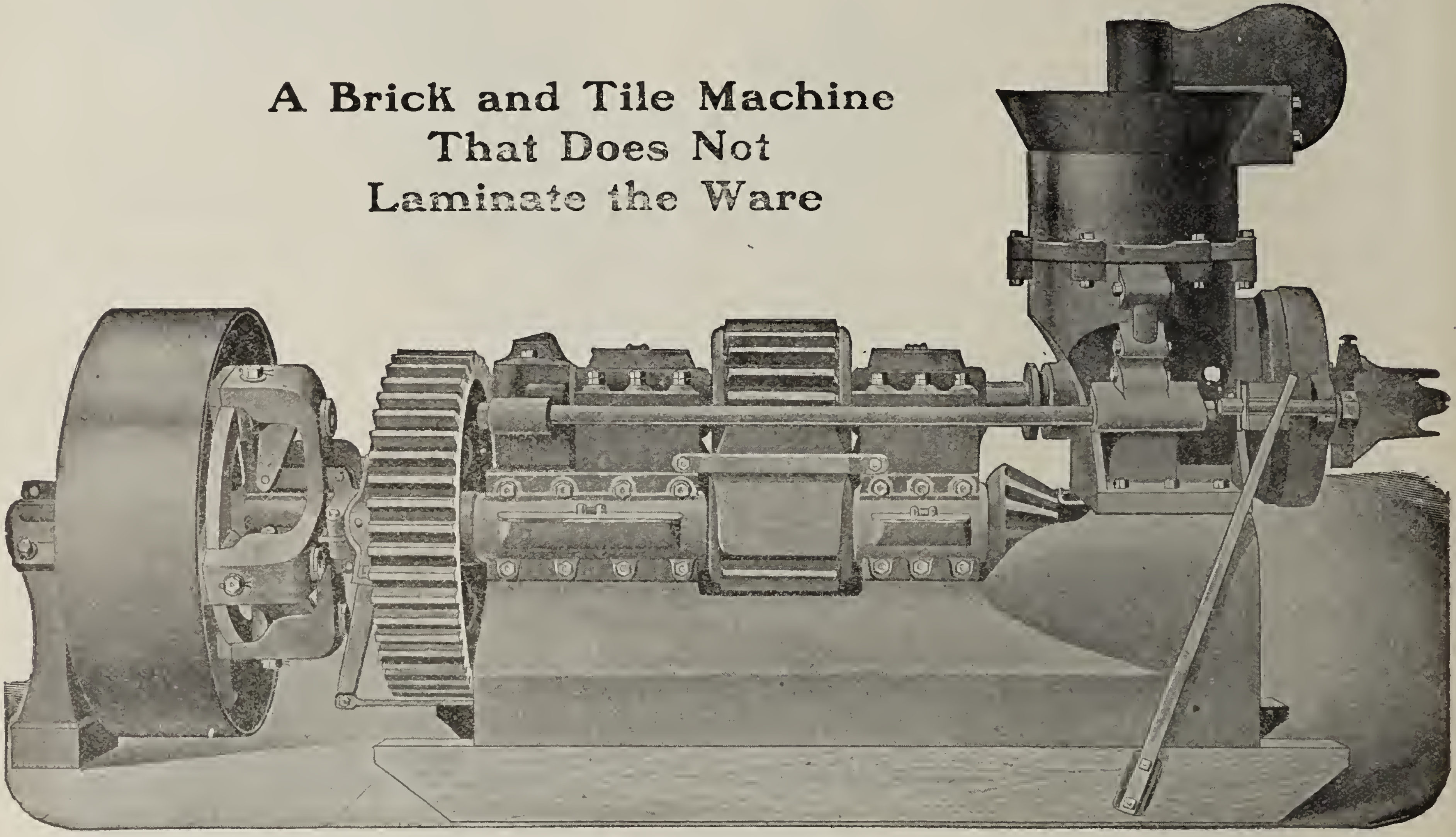
**A Brick and Tile Machine
That Does Not
Laminate the Ware**



The Big Wonder Brick and Tile Machine

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

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THE WALLACE MFG. CO.

FRANKFORT, IND.

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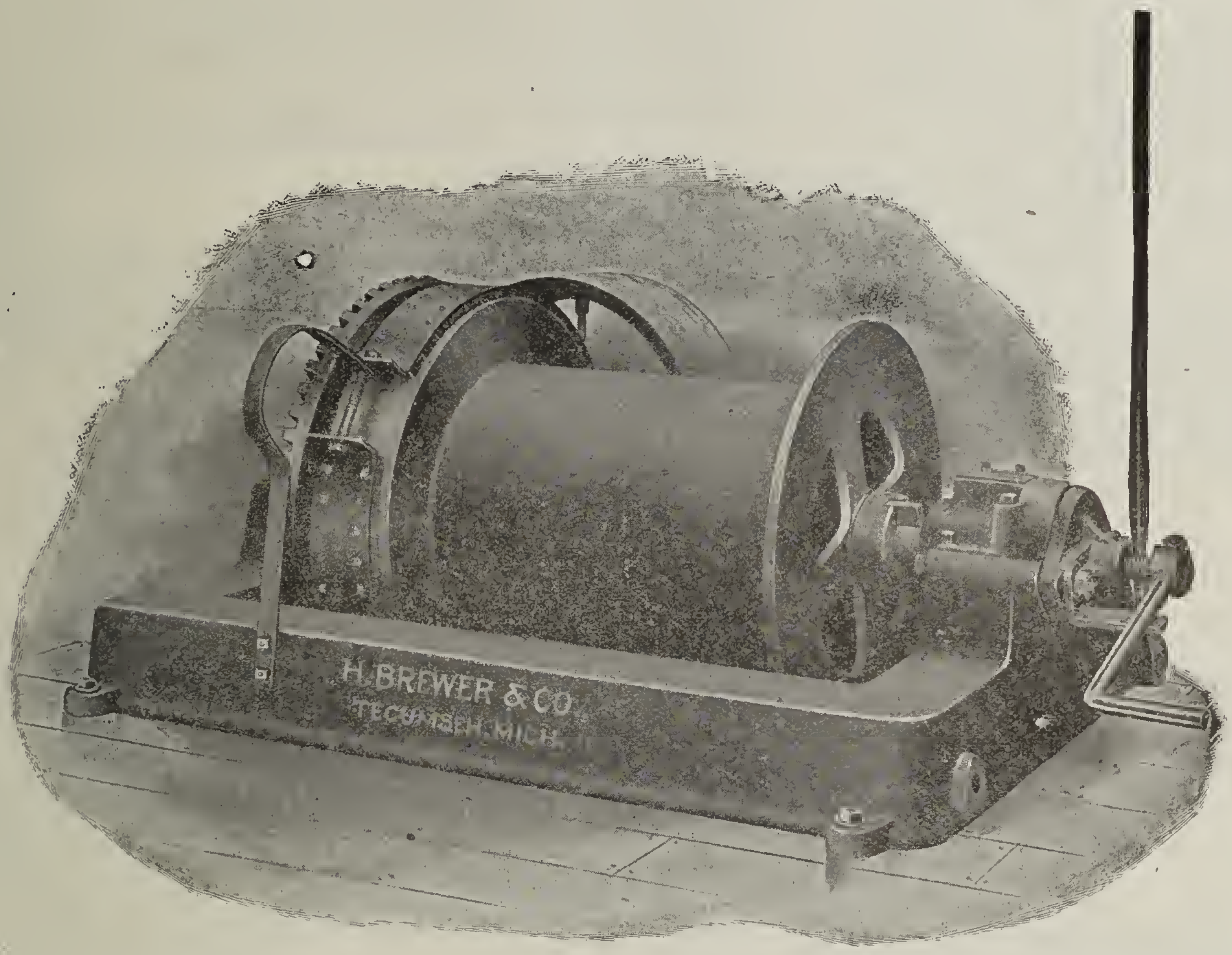
HOISTS

You can buy a Brewer Hoist without buying trouble with it. It will keep on hoisting without any coaxing. We have spur-geared hoists, bevel-geared hoists, spur-friction hoists and bevel-friction hoists. Large ones and small ones and all of them **good.**



This is a Heavy Bevel=Geared Pattern

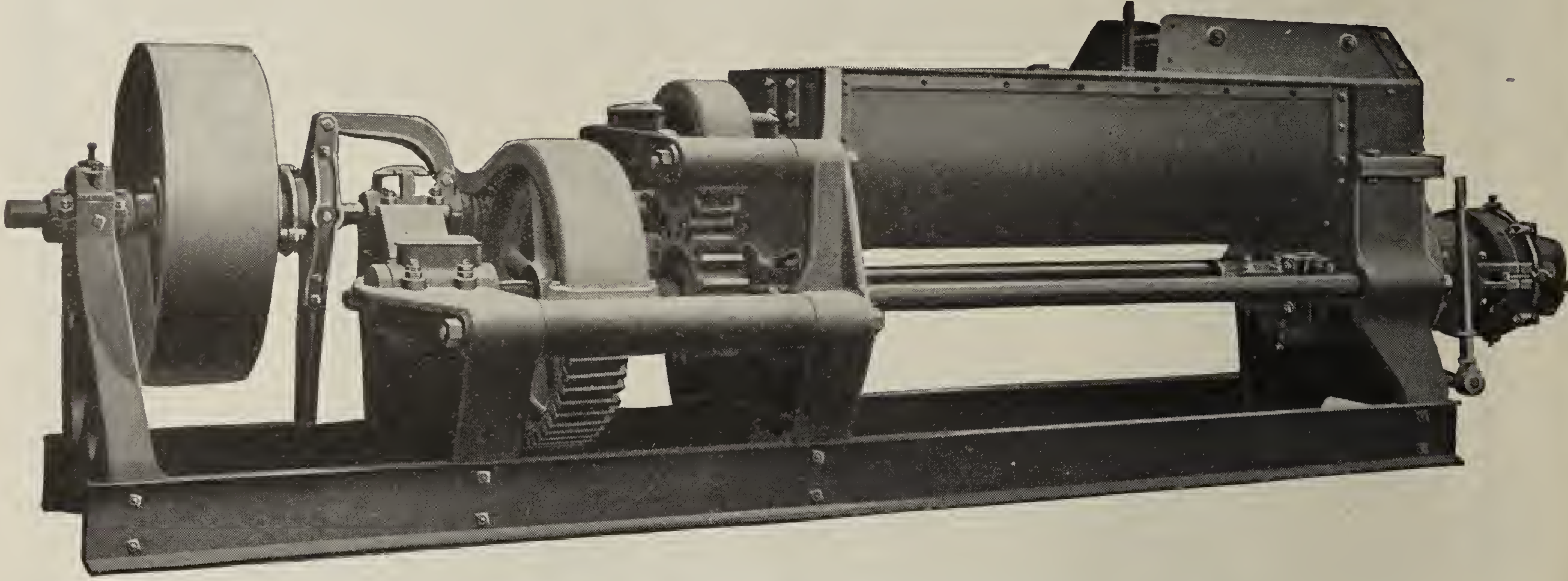
It is No. 28. It weighs 3,000 pounds. The drum is 20 in. diameter, 28 in. between flanges and the flanges are 30 in. diameter. The journals are self-oiling, the gears 4 in. face, the brake band 5 in. wide. Can be made right or left hand. Illustration above is left hand. It is enough of a hoist for the biggest plants, and we have smaller ones for the others.

If you ask for our catalog you will get it

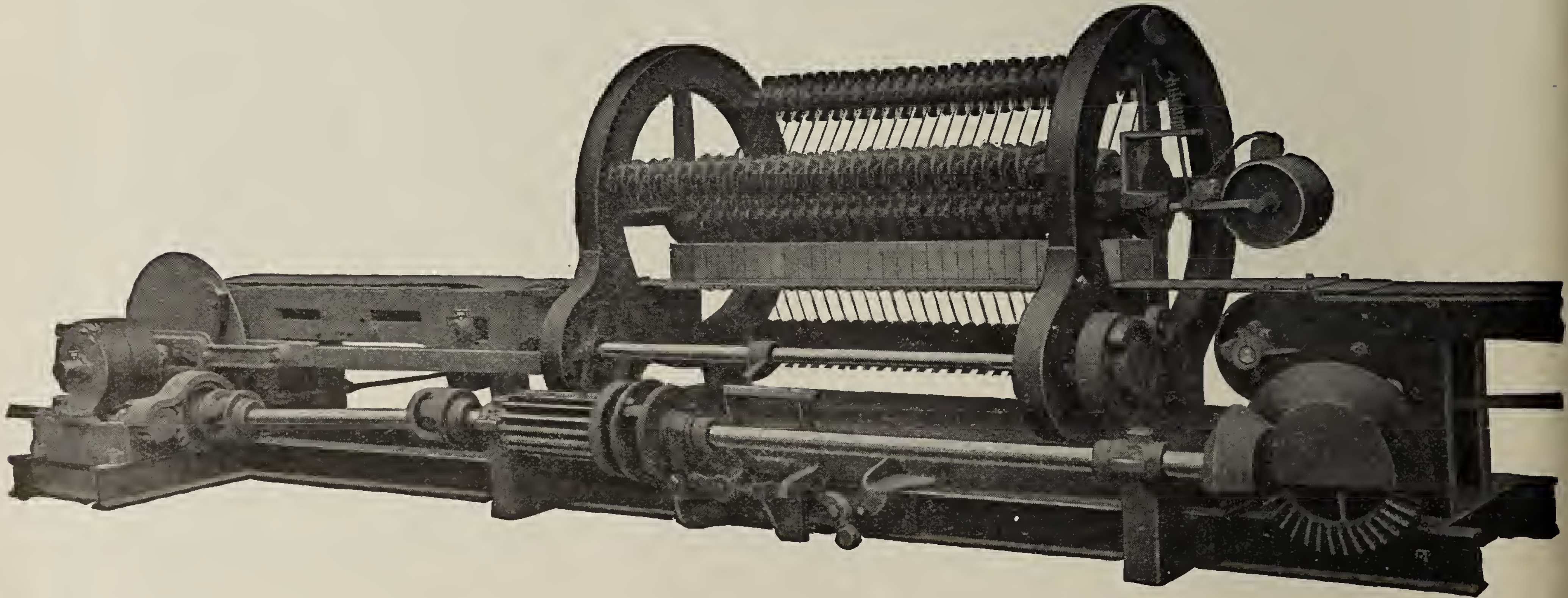
H. BREWER & COMPANY, Tecumseh, Mich.

MR. C. H. ANDREWS WILL INSTALL A FREESE UNION MACHINE AND FREESE AUTOMATIC CUTTER.

On his new modern face brick plant, now being erected at New Castle, Pa., Mr Andrews will install Freese equipment throughout. As a face brick Manufacturer of many years experience Mr. Andrews, preference is a compliment to Freese Machinery.



Freese Union Machine



Freese Rotary Automatic Cutter

E. M. FREESE & COMPANY

Galion, Ohio

DEPENDABLE MACHINERY OF PROVEN EFFICIENCY

Mention The Clay-Worker.

ECONOMY

is the WATCHWORD in EVERY line of endeavor. TRUE ECONOMY in the CLAY BUSINESS is found in good, efficient machinery that is so constructed that it does the work with the least power and little or **no cost for repairs.** That is just what the FROST DRY PANS do. That is why they are so popular. More FROST PANS are in use than any other make.

THE FIRST COST is the ONLY COST of FROST PANS as you will learn if you will ask the users of FROST PANS. For instance, ask the Purington Paving Brick Co. They have used FROST PANS for many years grinding hard shale for 300,000 paving brick per day. That is heavy service. Ask them the reason.

THERE IS A REASON; several reasons in fact, and we will "SHOW YOU" if you are open to conviction.

WE ALSO MAKE Wet Pans, Sand Mills, Chaser Mills, Brick Rattlers, Automatic Engines, Tubular Boilers, Feed Water Heaters. In short, complete power equipment for Brick and Tile Plants.

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David Crossley President.
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THE BUCKLEY SYSTEM

Donald M. Miller Secy.
Harry D. Levitt Treas.

OUR factory being equipped with every modern means and facilities enables us to extend to the clay and porcelain industry a service unexcelled. The officers of the Company are men who have each spent a quarter of a century or more in solving clay manufacturing problems and need no introduction as successful clay operators or successful clay machinery builders. In short, our facilities combined with our practical and technical clay knowledge challenge comparison.

We are the originators of the spark plug conditioner.
We are the originators of the automatic porcelain dryers.
We are the originators of the automatic mangle.
We are the originators of the automatic stove rooms employing re-circulation of air.

The Ceramic Equipment Company being the sole manufacturers of dryers having the right to use the BUCKLEY SYSTEM is confident it will fill a long felt want. It will aim to establish for itself a reputation for efficiency, honesty and fair dealing. It will not solicit or accept orders that can not be filled as promised. It will strive to co-operate with the clay and porcelain manufacturers in solving their difficult drying problems. It will devote its entire efforts and production to the clay field.

Our technical clay knowledge gained by 20 years' experience enabled us to solve the problem. The BUCKLEY SYSTEM did it by a scientific application of practical principles. For the past year the BUCKLEY SYSTEM has led in developing a scientific method of clay drying. It will continue to lead because of the practical clay knowledge combined with the successful experience of clay machinery building. Others may attempt to follow. Do not be misled or trust your difficult drying problems to amateurs.

Write us for a list of enthusiastic users whom we will gladly give as referrences.

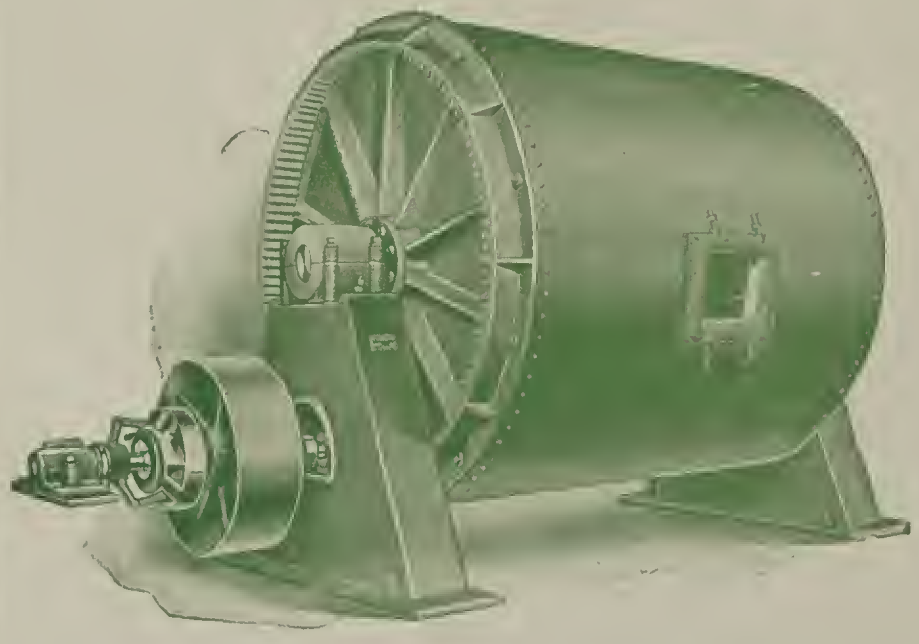
CERAMIC EQUIPMENT COMPANY

Trenton, N. J.

This "B" style Crossley Mill is made in 2 sizes—

4-ft. 6-in. and 6-ft. 8-in. It is lined with silex, hickory or porcelain as ordered.

Driving pulley is fitted with friction clutch—operator can start and stop the mill in any position.



Hardened and ground roller bearings—

enclosed in a dust-proof casing make for an appreciable saving in fuel and power; and hold down the up-keep cost.

The Crossley No. 9 Ball Mill may be placed on floor without foundations. Motor may be set on base plate for gear or chain drive.

Write for our catalog. 200 pages devoted to illustrations and descriptions of clay working machinery.

The Crossley Machine Co.
(Inc.)

Trenton, N. J. U. S. A.

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